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ABSTRACT

The purpose of the conference reported in these proceedings was to help enrich the field of critical thinking through the perspectives of scholars and professional practitioners in a variety of academic disciplines. The papers included in these proceedings reflect the thoughts of 49 authors representing 10 academic fields. After the presentation of the plenary session papers, the volume is divided into four sections which include papers addressing the goals and purposes of education, general approaches, the nature of teachers' professional knowledge, and specific techniques for teaching and learning. Central issues in critical thinking are addressed with a focus on aspects of educational theory and practice that relate critical thinking to education--for teachers, students, administrators, and the communities served. Some topics covered are: educational reform, views of democracy and implications for education, literacy, intellectual rights, the role of the university, critical thinking and cooperative learning, course and curriculum improvement, faculty development, training teachers for critical thinking, teaching methods, teaching critical thinking across the curriculum, moral education, and teacher improvement. (LL)

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Critical Thinking: Implications for Teaching and Teachers

Proceedings of the 1991 Conference

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Edited by

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Mark Weinstein
Nicholas M. Michelli

Institute for Critical Thinking

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CRITICAL THINKING: IMPLICATIONS FOR TEACHING AND TEACHERS

Proceedings from the 1991 Conference

edited by

Wendy Oxman
Mark Weinstein
Nicholas M. Michelli

Institute for Critical Thinking

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CRITICAL THINKING: IMPLICATIONS FOR TEACHING AND TEACHERS

CONFERENCE 1991 PROCEEDINGS

Overview

The Institute for Critical Thinking at Montclair State has sponsored a conference, *Critical Thinking: Implications for Teaching and Teachers*, to help enrich the field of critical thinking through the perspectives of scholars within a variety of academic disciplines, and professional practitioners. The papers included in the proceedings of this conference stand as an index of the usefulness of such a point of view. The volume reflects the thoughts of more than 49 authors representing some 10 academic fields. It is divided into four sections that include papers addressing the goals and purposes of education, general approaches and specific techniques for teaching and learning, and the nature of teachers' professional knowledge. The papers address central issues in critical thinking and focus on crucial aspects of educational theory and practice, reflecting the many perspectives that relate critical thinking to education- for teachers, for students, for administrators and for the communities that they serve. The various perspectives represented here, along with the papers from our first three conferences, already published as *Critical Thinking: Language and Inquiry Across the Disciplines*, *Critical Thinking: Focus on Social and Cultural Inquiry*, and *Critical Thinking: Focus on Science and Technology*, add significant new ideas to the field of critical thinking. In these Proceedings, the positions presented tend away from the mainstream of critical thinking theory, as primarily represented by the work of philosophers, and present many new and potentially useful points of view. What we take to be of central importance are the offerings of many disciplines involved with critical thinking but generally underrepresented in its literature. These various approaches furnish standpoints that we believe deserve careful consideration. Critical thinking, as reflected here, includes diversity of expression, but yet identifies continuities in methods and goals across the various disciplines.

At Montclair State, we have developed a notion of critical thinking that has at its center a concern with judgment. We maintain that students should see the content of the courses within a nexus of justification and application. This requires that students learn course content in relation to the methodological and substantive principles that support that content as justifiable—that is, permit the judgment that the information and procedures presented in the course have been appropriately justified. Further, we maintain that students should be helped to link information taught to some domain of meaningful application, a domain which frequently extends beyond the boundaries of the discipline itself. Knowledge taught to undergraduates should address the *theoretic reason* of the student by having the underlying theoretic and/or empirical bases of that knowledge made explicit. It should also speak to the students' *practical reason* by being related to purposes for which the knowledge has potential significance.

Knowledge essentially tied to judgment, we believe, is thus at the heart of undergraduate education. But judgment, if it is to be acceptable, must rest appropriately on good reasons. This is the core of critical thinking, and why it is essential to undergraduate education. For critical thinking constitutes the ability and willingness to identify and apply the set of principles that support judgment through the best available reasons. Such reasons, we believe, are most often found in the canons of the various disciplines. Canons include such a variety of basic beliefs and principles as ethical and methodological assumptions and practices, theories and facts that are held as unexceptionable, and genre for the presentation of results. Such canonical principles constitute the criteria used to support judgments of the most responsible sort in the various areas of inquiry. We do not, however, think that such principles are unchanging or are tied to one perspective. Rather, we believe that canons for good judgment are to be found in all of the various forms of human inquiry and that they have histories that enable them and require them to change in the light of reason and practice. We maintain that the disciplines evolve in their objects of concern and in their conceptions of appropriate methodologies to better understand the range of issues and topics that are at the center of academic and practical learning.

These disciplinary modes of inquiry reflect what is seen as best in the current standards that govern work in the fields. But these are not univocal, between or within fields, nor are they arbitrary. The disciplines, at any moment, reflect the range of what has been deemed best. To the extent that they are critical in their thought, they also reflect the ongoing exploration of these methodological and substantive canons by reflection on the practice of the discipline itself, by interaction with and comparison to other scholarly fields and in response to the complex universe of application that is the common reality with which all disciplines are concerned.

The connection between critical thinking, judgment and methods of inquiry of the disciplines is to be found in the analysis of critical thinking that the Institute for Critical Thinking owes to Matthew Lipman. In his analysis, critical thinking rests essentially on the identification and use of criteria for judgment, applied in a fashion sensitive to context, and with a commitment to ongoing reflection and self-correction. This notion offers a unifying focus for critical thinking across the disciplines while recognizing the validity of responses that reflect different criteria for application within particular academic arenas.

THE PLENARIES

THE PLENARIES

The three plenarists at the conference, Critical Thinking: Implications for Teaching and Teachers offer complementary perspectives on a central conference theme: the role for educators in contemporary society. Maxine Greene's paper, "From Thoughtfulness to Critique: The Teaching Connection," begins with a call for thoughtfulness: "the capacity to reflect on the taken-for granted." This prompts her to explore the concept of reflection on "our lived situations." Rather than seeing critical thinking as requiring a "disinterested observer," Greene calls for seeing "persons situated as embodied selves in relation to others."

This leads to the central notion of "critique." Greene sees our democracy to be "out of joint," "the speechlessness, the powerlessness, the erosion of support systems, the mean-spiritedness, the addictions, the sicknesses, the violence and violations, the carelessness, the greed." Critique is, among other things, "an activity of unveiling or debunking," it requires that we "find some way of seeing and thinking, that may provoke and sustain responsible action on the part of divers persons, teachers and students." She concludes: "We are charged, we who care about thinking and teaching, to study that equation and keep trying to discover what does not 'add up'."

The second plenary paper, "Confronting Inequality: The Moral Imperative for Higher Education," by Nicholas M. Michelli, situates the general problem that Greene raises within the context of our societies "savage inequalities" as reflected in education. Michelli sees two recent books, *There are no children here: The story of two boys growing up in the other America*, by Alex Kotlowitz, and *Savage inequalities*, by Jonathan Kozol as reminding educators their "obligation to help shape the society and be stewards of our best hopes and aspirations." Kozol and Koplowitz support Michelli's perception that the "quality of life in our urban centers is deteriorating." What his paper adds to the discussion is the view that "college and universities have a moral obligation to become involved in seeking solutions to the problems" that the authors describe.

Michelli sees the role of higher education in redressing the inequities of schooling as reflected in the problems of societies and the needs of individuals to be warranted by three considerations: "the problems have affected, and will affect higher education. Second, they have an implicit moral obligation as institutions responsible for the intellectual well-being of society to bring their intellectual strengths to bear on society's most pressing problems. Finally, and perhaps most importantly, these are real people, and we cannot turn our backs on them."

He draws on the work of Boyer, making recommendations for changing the culture of the university. He presents the model of the professional development school in "real partnership with an institution of higher education." Finally he cites Goodlad's call for the "simultaneous renewal of schools and teacher education."

The theme of social inequity continues in "Thinking is Critical," the final plenary paper, by Mark Weinstein, who traces a variety of senses in which teaching is critical. Looking at both social science methodology and the moral imperatives that postmodernism and multi-culturalism reflect, Weinstein traces what he takes to be essential roles for teaching in a society that strives for "a truly radical pluralistic democracy."

Drawing on nine different meanings for the word "critical," Weinstein calls for an expanded role for teachers in the "severe criticism" of curriculum and in the "careful and exact evaluation" of students. Calling for teachers to engage in "action research" and to "offer the results of their efforts to the larger community." His arguments are supported by an analysis of common statistical methodology and looks to "rich and realistic descriptions and plausible explanations" drawn from a "focus on actual practice."

Weinstein's discussion then shifts to the concerns prompted by the recent heightened awareness of diversity that reflects the "needs and perceptions of the many constituencies- students, parents and politicians- that have an interest in educational practices." Seeing the crisis in education to be the result of the "breakdown of educational paradigms and characterized by alienation, he sees the need for increasing teachers' professional status and perquisites in order to redirect education away from the conservative "ideal of excellence" and towards the "liberal ideal of equity."

FROM THOUGHTFULNESS TO CRITIQUE: THE TEACHING CONNECTION

Maxine Greene

John Barell, in his lovely book called *Teaching for Thoughtfulness* (1991), teased me into pondering the many facets of thoughtfulness and seeking connections between thoughtfulness and critique. Originally, it was Hannah Arendt who made me recognize the centrality of thoughtfulness to a conception of philosophy. At the beginning of *The Human Condition*, she wrote in a language and in a mood that have remained unforgettable: "What I propose...is a reconsideration of the human condition from the vantage point of our newest experiences and our most recent fears. This, obviously, is a matter of thought, and thoughtlessness—the heedless recklessness or hopeless confusion or complacent repetition of 'truths' which have become trivial and empty—seems to me among the outstanding characteristics of our time. What I propose, therefore, is very simple: it is nothing more than to think what we are doing" (1958, p. 5). Later, in the posthumous collection called *Thinking*, she accounted for her preoccupation with thoughtlessness by recalling her observations of Adolf Eichmann with his "cliche-ridden language." She said: "Cliches, stock phrases, adherence to conventional, standardized codes of expression and conduct have the socially recognized function of protecting us against reality, that is, against the claim on our thinking attention that all events and facts make by virtue of their existence" (1978, p. 4). She knew very well that no one can be continuously responsible to such claims; but the trouble was with Eichmann that he knew "of no such claim at all."

Thoughtfulness, then, for Arendt had much to do with the capacity to reflect back on the taken-for-granted, on stock responses, on the merely formulaic. It had as well to with speech and action, with the capacity to break through the wordless and the abstract in order to come together with others, and to bring into being all "in-between" (1958, p. 82). It had to do with a kind of mutual recognition and, at once, a taking of responsibility for the world as known, the world as lived. What Arendt said often evoked for me John Dewey's conception of mind as the ability to deal "consciously and expressly with the situations in which we find ourselves" (1934, p. 263). That is because there seems to be in both a grounded, active, perspectival view of thinking and of thoughtfulness. It suggests for me a way of being in the world, of being alive.

That is probably the reason why it connects so much with the idea of wide-awakeness, which I have borrowed from Alfred Schutz, Albert Camus, and Virginia Woolf—knowing well there are many more. Camus wrote, it may be recalled, about what can happen when habits are suddenly disrupted, when "the chain of daily gestures is broken..." (1955, p. 12). He went on to say that "one day the 'why' arises and everything begins in that weariness tinged with amazement. 'Begins'—this is important. Weariness comes at the end of the acts of a mechanical life, but at the same time it inaugurates the impulse of consciousness. It awakens consciousness and provokes what follows. What follows is the gradual return into the chain or it is the definitive awakening" (p. 13). As I read it, it is the definitive awakening to the asking of the question ("Why?"), the being aroused to thoughtfulness. As I reread it now, it strikes me as a description of a phenomenon towards which every teacher yearns. How, indeed, I ask myself and continue asking myself, how are we to disrupt the life of habit, enable the young to feel that "weariness"—or, if you like, the boredom many of us know too well?

And then there was Alfred Schutz, writing that by "'wide-awakeness' we want to denote a plane of consciousness of highest tension originating in an attitude of full attention to life and its requirements. Only the performing and especially the working self is fully interested in life and hence, wide awake. It lives within its acts and its attention is exclusively directed to carrying its project into effect, to executing its plan. This attention is an active, not a passive one. Passive attention is the opposite to full awakeness" (1967, p. 213). Passive attention, he believed, meant drowning in a sea of small perceptions rather than what he called "gearing into the world" and trying to change it. Saying all this, he not only enriched the notion of wide-awakeness by linking it to the idea of project—the project by which a person, any person invents herself or himself; he implicitly challenged the merely contemplative stance. Also, by extending the idea of attentiveness to acting in and on the world, he suggested a kind of thoughtfulness that was more than merely intellectual.

Virginia Woolf was as troubled by what she called "non-being" as Dewey, Camus, and Schutz were by submergence in the passive and the habitual. For her, "non-being" was like being "embedded in a kind of nondescript cotton wool" (1976, p. 70). There were, however, "exceptional moments," remembered for the shocks of awareness they brought with them that led to new awarenesses, "moments of being," sometimes pleasurable, sometimes not. Reaching back to her childhood to recapture some of them, she made clear that she had experienced what could be called awakenings to thoughtfulness each time. She associated them with seeking an explanation for what, unexplained, made her feel passive and often injured. It is, she wrote, "explanation" that "blunts the sledge-hammer force of the blow"—the blow of what escaped understanding at the time. She went on to say that she later found those sudden shocks welcome and valuable. "And so I go on to suppose that the shock-receiving capacity is what makes me a writer. I hazard the explanation that a shock is at once in my case followed by the desire to explain it" (p. 72). It should be clear that she was linking those shocks not only to the beginning of thoughtfulness, but to the creation of her project which was writing, her way of acting in the world.

It must be said, as we know from her books, that her writing as well as her explaining were as thoughtful as they were imaginative and perceptive. Most of us recognize that thinking, as in her case, is almost always integrally related to projects, to modes of action, to what people do in the world—whether it is writing novels, keeping house, gardening, driving cars, selling in a department store. We also recognize, on some level, that people who do those tasks well do not first have to review the skills of thinking. In other words, the efficient housekeeper, no more than the proficient writer, does not have to think what to do before she does it. Gilbert Ryle (a British philosopher very different from Alfred Schutz) made the point that thinking is not "a precursor of or a preparatory step towards our doing what we want to do; "it is an element, and an essential element" in our trying to do it (1972, p. 37). The housekeeper or the gardener or (on many occasions) the writer confronts basically practical problems. The solutions of those problems are found in the clean, quiet house or the flowering chrysanthemums or the publishable novel. In no case is the thinking involved prior to or separate from the achieving. It is a constitutive aspect of the dusting and the polishing, of the seed-planting, of the shaping of language and the creating of a world. The focus, I am suggesting, should therefore be on efficient housecleaning, careful gardening, attentive expressing or presenting or telling how it was, not on the thinking skills involved.

There is an obvious difference, of course, between certain of these activities and what is called doing intellectual work. Ryle wrote that learning to be a good mathematician or historian or chemist requires some capacity to understand what it is to think "properly" (p. 38). That signifies an ability to justify what is said, to give good reasons, and (I would add) avoid what Arendt called "complacent repetition of 'truths' which have become trivial and empty." It seems evident that the obligation to justify, to offer good reasons, to resist stock responses is, as Ryle put it, internal to the kind of thinking that can be called intellectual (p. 42). I would go further in some ways. I would put stress upon the need for reflexivity, as well as the need to care about the quality of one's thinking. Again, none of this is detached from the activity of thinking. The activity itself might be said to be an enactment of caring, attentiveness, scrupulousness when it comes to relating to what calls out for explanation, to the problems that come clear when, as John Dewey said, "we deal consciously and expressly with the situations in which we find ourselves" (1934, p. 263).

I would stress the consciousness of situatedness in pondering thinking and thoughtfulness. Not only are persons situated as embodied selves in relation with others. They are aware of their particular locations, their perspectives, the partiality of their perceiving. If they are encouraged to remain aware, to tell their stories on the ground of such awareness, they will escape the artificiality, indeed the falseness of the detached vision. Too frequently, as we well know, the idea of the rational person is linked with a notion of a disinterested observer, if not some ideal resembling James Joyce's indifferent God paring his nails. Even Gilbert Ryle warned against preoccupation with purely theoretical reasons or justifications, as he cautioned against assuming that the main intellectual fault against which the thinker was to be trained was "a breach of the rules of Logic" (1972, p. 40). Maurice Merleau-Ponty, emphasizing the importance of perception and the fact that what we perceive "is not an ideal unity in the possession of the intellect, like a geometrical notion... it is rather a totality open to a horizon of an indefinite number of perspectival views which blend with one another..." (1964, p. 16). Conscious of this, we become also conscious of the enticing and unending incompleteness of what is accessible to us. Perception, said Merleau-Ponty, "summons us to the tasks of knowledge and action" (p. 25). It moves us to thinking and to thoughtfulness.

Again, I would draw attention to the importance of the lived situation, the ground of our perceiving. In any given situation, it must be realized, we are both responsible and not responsible, free and determined. Our lived situations, after all, include the stuff of our biographies; they are affected in many ways by gender considerations, class considerations, ethnic considerations, and at once by factors so far below the surface of consciousness we cannot name them. Not only are we never in full control of our situations, but the meanings we ascribe to what we do are not always the same as the meanings others ascribe to them. Nonetheless, it is up to us to give meaning to our lived situations, even as we mediate what we feel to be personal through the common, through what might be called the social. As Merleau-Ponty put it, "If we actually reflect on our situation, we will find that the subject, thus situated in the world and submitting to its influences, is at the same time he who thinks the world" (p. 57). Saying that, he was suggesting how much thinking had to do with grasping the appearances of things, how much it had to do with *acts* of consciousness, interpretive acts, and what he sometimes called "intentional analysis." And he talked about how important it was to combine empirical thinking or induction with "the reflective knowledge that we can obtain from ourselves as conscious subjects." As I hope I can make clear after a while, this can be viewed as essential to critical thinking and to opening the way for what I am calling critique.

The languages may be different; the approaches, definably different; but it is interesting to me to find Matthew Lipman, discussing critical thinking for children, consistently presenting thinking skills in the context of children's everyday lives (1977). It is equally interesting to find Richard Paul talking about dialogical thinking and about the importance of seeing things from multiple points of view (1985). Even the psychologist Robert Sternberg writes not only about the experiential and about the range of occasions for critical thinking in everyday life as well as in academic domains (1985).

Whatever the discipline, there is a concern for live contexts, as there is for bridging between the theoretical and the academic and lived life or the everyday. Many would agree with John Passmore, who said that, if the critical spirit is to be encouraged, teachers have to develop in their pupils "an enthusiasm for the give-and-take of critical discussion" (1972). He had what he called "critico-creative thinking" in mind, with the idea that "in the great traditions" imagination and criticisms are combined (p. 33). Imagination, he suggested, can be controlled by criticism; and criticisms, fed by imagination, can be transformed into new ways of looking at things. In the conversations he described, "the give-and-take of critical discussion," both teachers and students are called upon to display processes of critical judgment and to defend what they say in public by producing relevant grounds. Ryle's mention of thinking "properly" connects with this; but, in Passmore's treatment, there is the likelihood that rules governing the "proper" might be defined and redefined. For Passmore, people are capable of thinking critically about, as distinct from simply obeying a rule.

It is probably evident that these approaches to bridging, conversation, and justification are related to conceptions of subject matter or content. Criticism has no point of departure, after all, if it is not linked to the building up of bodies of knowledge, practical and theoretical. In such contexts, the aware and intelligent practice of skills and the application of rules can be encouraged. Open questions can be confronted; open texts can be read. For me, this is most likely to happen if students are enabled to reach out from their own places, their own situations, with the hope of looking through the lenses provided by the disciplines. Looking through such lenses or perspectives in accord with some consciousness of how such looking ought to be carried on, students may find themselves ordering the materials of their experience in novel ways. They may find themselves, as Merleau-Ponty said, on a "route." They may come to know "an experience which gradually clarifies itself, which gradually rectifies itself and proceeds by dialogue with itself and others" (1964, p. 21). He was talking, not only in terms of openness and new perspectives; he was emphasizing the importance of "thinking through our errors," of rectifying as things became gradually clear. And he was suggesting, as I would want to do, an interpretive approach, a way of gaining understanding and achieving meaning against the background of lived life.

The most telling example I can think of is in the reading of works of literature from the point of view of what is sometimes called "reader reception theory" (Iser, 1980; Scholes, 1989). According to this view, meanings are not predefined, hidden in particular texts and there to be unearthed. Whether the work is *Moby Dick* or *Madame Bovary* or *Beloved* or any other, the meanings must be achieved through action on the part of a reader. Such texts provide perspectives through which to look: four main perspectives, writes Wolfgang Iser (1980, p. 35), those of the narrator, the characters, the plot, and the reader. These perspectives (Ishmael's, say, the island men on board the Pequod, Captain Ahab's, the "manic quest" of the white whale, the reader against the background of her readings and experience) provide guidelines originating from different starting points. Iser says these guidelines shade into each other and at length converge in a general meeting place which is called "the meaning of the text...only brought into focus if it is visualized from a standpoint." The standpoint and the convergence emerge during a reading process in which the reader occupies shifting vantage points in an effort to fit the different perspectives she discovers into an evolving pattern. Iser himself sees this as an analogue for the perspectival view I have tried to describe as a ground for critical thinking. He speaks of the reader situated in a position from which he can assemble the meaning towards which the perspectives of the text have guided him. The meaning, however, is not that of an external reality, nor is it a copy of the reader's lived world. It is a reality brought into meaning by the reader's ideation or (we might well say) critical thinking. It is through that active thinking and interpretive process that the text sets off a series of mental images, the content of which may be colored by the reader's own experience. It thus becomes a referential background against which the unfamiliar can be conceived (p. 38). This notion of unfamiliarity is important. It discloses dimensions of experience and the lived world obscured by the habitual and the routine. When this happens, the text can bring about a standpoint, says Iser, "from which the reader will be able to view things that would never have come into focus as long as his own habitual dispositions were determining his orientation..." (p. 35). It strikes me that this is one of the purposes of teaching critical thinking: to alter such dispositions; to overcome determinism; to allow students to become different in a reflective way. Quite naturally, it seems to me that informed encounters with literature and the other arts can contribute to attaining such ends-in-view. But it may be the case with other texts in other fields of study as well; since historical, anthropological, and even scientific texts have in some way to be rewritten, as Roland Barthes once said, "within the text of our lives" (1985, p. 98).

I am talking, of course, about the kinds of understanding that are made possible by interpretive approaches. When such approaches are used, our interest is in meaning for the subject, for the one who poses the question from her own situation in the world. Lacking the possibility of intersubjective validation as in the case of the empirical sciences, interpretation still must take place within a dialogical atmosphere in the classroom. This includes but goes somewhat beyond what Passmore described as the "give-and-take of critical discussion." For Hans-Georg Gadamer, a dialogue is "a process of two people understanding each other. Thus it is characteristic of every true conversation that each opens himself to the other person, truly accepts his point of view as worthy of consideration and gets inside the other to such an extent that he understands not a particular individual, but what he says" (1975, p. 347). Mikhail Bakhtin adds to that the idea that dialogue (unlike monologue which tends to make objects of other persons) allows for the recognition of "a plurality of consciousnesses, each with its own rights, each with its own world..." (1984, p. 8). To become aware of this is to become better able to look through a range of perspectives. It is also to see the relationship between dialogue with another person and interpretation, which is a mode of dialogue with a text. In that mode of dialogue, of course, one partner in the so-called conversation finds expression only through the other, who is the reader or the interpreter. What seems important in both dimensions is the likelihood of challenge to fixed opinions and stock responses through the encounter, through the coming together.

This summons up once more Hannah Arendt's tying of thoughtfulness and thinking to speech as well as action and to being among others. In her viewing, those others have to be perceived as beings with distinct perspectives, reaching out to bring something in common into existence, what she sometimes called a "common world." Talking about this in relation to education, she wrote: "Education is the point at which we decide whether we love the world enough to assume responsibility for it and by the same token save it from that ruin which, except for renewal, except for the coming of the new and the young, would be inevitable. And education, too, is where we decide whether we love our children enough not to expel them from our world and leave them to their own devices, nor to strike from their hands their chance of undertaking something new, something unforeseen by us, but to prepare them in advance for the task of renewing a common world" (1961, p. 196). She was talking, of course, about educating for new beginnings, for the unforeseen, even as she was reminding her readers of continuities.

She surely saw the fundamental importance of clear and responsible thinking, critical thinking; and she knew very well, thirty years ago, that the times would be likely to be out of joint—unless, she said, human beings "are determined to intervene, to alter, to create what is new" (p. 192). And this too was involved for her in the project of "renewing a common world." It is this that draws me beyond what we know as critical thinking to what may be called critique. Like most of you, I am sure, I am preoccupied by the degree the times are "out of joint" in this democracy: the speechlessness, the powerlessness, the erosion of support systems, the mean-spiritedness, the addictions, the sicknesses, the violence and violations, the carelessness, the greed. I am preoccupied, too, by the slippage where a sense of oughtness is concerned. For a moment, when the walls went down in Europe, there was a lift of spirit, as if commitments to freedom and responsibility had triumphed over totalitarian cruelty and controls. Then there were the peculiarly hollow sounds of cheers for the "free market"; there were the sounds of breakage as old orders fragmented, as people took flight while others cheered. We lived through the mystifications of the "desert war," the false promises of the "new world order." We confront in our own free market racial conflict, the dreadful spread of poverty, backlashes against women and the poor themselves, the suffering and destitution of children. And among students? Boredom too often, cynicism, passivity, a peculiar ebbing of hope.

It is with all this in mind that I ponder the opening of new perspectives on action and what Arendt called renewal. It is with all this in mind that I want to link what we do in schools with an authentic vision of the possible. I search for an approach to critique that leads to choices of intervention, the making of changes, the creation of what is new. Much that has been written about critical theory, as defined by the Frankfurt School some years ago, attracts me; but, even as it does, I want to be wary of importing a point of view that overtakes and may in time drown out what have been called our "local understandings" (Walzer, 1987, p. 53). Also, I am eager to identify an approach to critique or critical theory that is consonant with my view of critical thinking, perspectivism, and interpretation as I have tried to develop it here.

Obviously, with Arendt in mind, I am eager to find some way of seeing and thinking, that may indeed provoke and sustain responsible action on the part of diverse persons, teachers and students. When I think of an appropriate critical theory, then, I think of one directed to enabling persons to find out what their authentic interests are in the world. In a sense it may be a process of moving them to reflect upon their needs and desires in order to decide whether or not existing ideologies satisfy them and support their fulfillment. By ideology, I mean a meshwork of beliefs, values, attitudes, and means of justification that characterizes and may indeed rationalize the pursuits of (let us say) bourgeois or working class culture today. We might devise situations in which students are brought to reflect upon the connection between their desires to possess and to consume, or their desires to manipulate and control, or their desires to escape and to deny — and what weighs down upon them, exerts power over them as they live their lives in a media-dominated world. Michel Foucault's notions of diffused power cannot but rise up when we think this way. We know by now that, for him, power is not exercised by someone at the top of a hierarchy; nor does power largely work as a homogenizing force. There are "connections," he wrote, "cross-references, complementarities" in the interplay of family, medicine, psychiatry, the school, and justice where children are concerned; and this is what we have to try to understand (1980, p. 159). In teaching, the problem is to distance somehow, to bring these connections into view among our students. It is only when they come to terms with power in its various embodiments—language, institutional practices, monuments, normalizing tendencies, examinations—that they are likely to become recalcitrant and think about their own thinking with regard to it. This relates for me to Foucault's notion of critique as oppositional thinking, "as an activity of unveiling or debunking" (Connerton, 1976, pp. 16-17). And he wrote: "Thought is freedom in relation to what one does, the motion by which one detaches oneself from it, establishes it as an object, and reflects upon it as a problem" (1984, p. 388).

This, in turn, may be related to the potential role of critical theories emancipating persons from a kind of coercion of consciousness. It might be self-imposed. Going back to William Blake, young people may have to be provoked to the kind of reflexiveness that will allow them to break the "mind-forged manacles" that keep them from choosing themselves and from acting in collaboration with others to heal, to repair what is wrong. Certainly, as I have tried to suggest, it is important to acknowledge the epistemological importance of reflectiveness. It may be equally important to work to understand what has been called "self-formation" (Habermas, 1971), to contemplate life stories, to tell the stories. Like a number of other thinkers today, Charles Taylor writes that "because we cannot but orient ourselves to the good, and thus determine our place relative to it and hence determine the direction of our lives, we must inescapably understand our lives in narrative form, as a 'quest'" (1989, P. 52).

Recapitulating in part, I should also like to associate the hermeneutic stance with the notion of critique. At once, I should like to distinguish—and enable students to distinguish—between critical theories and theories in the sciences, to understand what the meanings of the human sciences can be. Certainly, there must be caution with relation to what is called instrumental or technological rationality, the kind of caution Donald Schon advises in his work when he reminds his readers of the felt inadequacy of the original positivist understanding of science and knowledge, and proposes a move towards "reflection-in-action" in situation-specific sites of practice (1983, p. 49 ff.) Schon makes it possible, in fact, to widen our conception of critique to include intuitive and imaginative performance, improvisation and spontaneity in practice. For him, reflectiveness demands "the freedom to reflect, invent, and differentiate" and challenges to prevailing knowledge structures (p. 333, p. 335). There are, in what may be a revised account of critical thinking, connections as well to what have been called "women's ways of knowing" (1986, Belenky, et al.) centering around the part played by knowers in the construction of knowledge—and the awareness of that part. "By holding close to the women's *experience of* voice," say the writers, "we have come to understand conceptions of mind that are different from those held by individuals who find 'the mind's eye' a more appropriate metaphor for expressing their experience with the intellect. By telling us about their voice and silences, by revealing to us how much they could hear and learn from the ordinary and the everyday..., women told us about their views of the world and their place in it" (p. 19). For them and for other feminist writers, and for others concerned with developing renewed approaches to critique, there are strategies of thinking that grow out of embeddedness in human relationships, strategies that may be new. From a slightly different vantage point, there is Jane Flax proposing a "transitional" mode of thinking—founded in psychoanalysis, feminist theories, and post-modern philosophies. Each of these modes of thought, she says, "has anticipatory moments that offer glimpses of a future that will not be a mere repetition of the past. These transitional modes of thinking are both symptoms of the state of our culture and partial, necessarily imperfect tools for understanding it. They illuminate the problems most deeply felt within our society and some of the roots of our helplessness to resolve that which makes us miserable" (1990, p. 14). Her book is called, significantly, *Thinking Fragments,* suggesting the post-modern critique of old "metanarratives," enlightenment harmonies, totalities, and frameworks in which all conflicts are resolved. As we develop, in our necessary tension, contemporary critiques to be taught and learned in the classroom, this too—with all its implications for diversity and difference — must be taken into account.

Wide-awakeness, situatedness, intersubjectivity, reflexiveness, constructed knowledge, achieved meanings: these have been some of my themes as I have struggled to move from a treatment of thoughtfulness to a view of legitimate critique. I spoke earlier about being careful that what we introduce as critique does not appear alien to local understandings. Michael Walzer, cautioning against a social criticism that becomes detached from and distanced to the society in which it took shape, writes that "Criticism does not require us to step back from society as a whole but only to step away from certain sorts of power relationships within society. It is not connection but authority and domination from which we must distance ourselves. Marginality is one way of establishing (or experiencing) this distance; certain sorts of internal withdrawal provide other ways" (1987, p. 60). And then he speaks of a critical distance measured in inches and about the social critic who tries not to be an enemy even though he is fiercely opposed to this or that prevailing practice or arrangement. "His criticism does not require either detachment or enmity, because he finds a warrant for critical engagement in the idealism...of the actually existing moral world" (p. 61). Recalling the widely questioned "desert war" and its public presentation, recalling the savings and loan scandals, recalling the Clarence Thomas hearings on television, we cannot but reflect continually on how we can develop a necessary critique—and enable our students to do so—without alienating ourselves from the social world around. It may be part of our commitment, part of our predicament as well. Surely, it engages us and will continue to engage us as critical thinkers ourselves, struggling to make appropriate judgments, struggling for mutuality, as we make sense from our situated perspectives, as we try to live in the world.

I want to end with a few references to a remarkable modern novel named *Accident: A Day's News*, written by Christa Wolf. The day is one of the days shortly after the disaster at Chernobyl, when the east German countryside like other places around Europe is being threatened by poisoning from the fall-out. It is also a day when the woman narrator's beloved brother is undergoing brain surgery. It is a world, therefore, when technology at its most destructive is opposed to technology in its most delicate and benevolent form. The narrator busies herself with domestic tasks; she calls her daughter and asks her to tell her about the children. She describes the terrible pictures surging up in her mind: "I was once more forced to admire the way in which everything fits together with a sleepwalker's precision: the desire of most people for a comfortable life, their tendency to believe the speakers on raised platforms and the men in white coats; the addiction to harmony and the fear of contradiction of the many seem to correspond to the arrogance and hunger for power, the dedication to profit, unscrupulous inquisitiveness and self-infatuation of the few. So what was it that didn't add up in this education?" (1989, p. 17). The book is about fusion, however, not fission. She turns to the children, to the look of the grass, to the concreteness and beauty of the earth and the sky. She is still outraged. She thinks of Conrad's "Heart of Darkness," of greed and violence. At the end, when she hears her brother has survived, she says, "How difficult it would be, brother, to take leave of this earth" (p. 109).

We are charged, we who care about thinking and teaching, to study that equation and keep trying to discover what does not "add up." We may be able to find connections that enable us to do something about the desire to submerge in a comfortable life, the tendency to believe blindly, the dedication to profit, even the self-infatuation of the few. And surely we can do more than we have about loving the earth. It will take critical consciousness, imagination, thoughtfulness of many kinds. It will take the opening of spaces where people can come together, where they can choose. It will take disclosures and refusals and the shaping of new visions. It will take thinking what we are doing, knowing there is no stopping place and that the search must continue on.

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CONFRONTING INEQUALITY: THE MORAL IMPERATIVE FOR HIGHER EDUCATION

Nicholas M. Michelli

The quality of life in our great urban centers is deteriorating. Increasingly residents in those centers are losing faith in the fairness of the society in which they live. Institutions designed to serve the populations in our cities appear unable to cope with the task before them. Colleges, especially public colleges, have a moral obligation to enter the struggle for equality to make the society a better one.

Within the past year or so, two books appeared that have had a profound effect on me. They helped me to crystallize my thoughts about our moral and social obligations as educators. They reminded me that we are more than part of society—an unjust society at that. They reminded me that, as educators, we have an obligation to help shape society and to be stewards of our best hopes and aspirations. The books are Alex Kotlowitz's *There are no children here: The story of two boys growing up in the other America* (New York: Doubleday, 1991) and Jonathan Kozol's *Savage inequalities: Children in America's schools* (New York: Crown, 1991). Using those books as a starting point, this paper examines the moral obligation of colleges to participate in national renewal, especially as it relates to interaction with the public schools.

Neither of the books are about higher education. They are not books that are likely to be read by professors or administrators other than those professionally interested in schools or life in our cities. That is truly unfortunate. Not only should they be read by anyone concerned about education or, for that matter, about the future of society in the United States of America, but they should be read together, because they emphasize two interrelated dimensions of the inequalities in this society. Kotlowitz focuses on the lives of children outside the schools while providing us with insights into what happens when they are in schools. Kozol primarily addresses what happens in schools—schools in which the disparity of resources is beyond what even those who work in schools are likely to realize.

They should be read by educators in colleges and universities for a number of reasons. They describe a state of events which tear at the fabric of society and which affect all institutions in society, including institutions of higher education. I argue in this paper that colleges and universities have a moral obligation to become involved in seeking solutions to the problems described. Our failure to do so would be a rejection of human beings who are largely unseen and forgotten and who deserve our attention.

If you read Kotlowitz and Kozol, you will feel the cumulative effect of the detail, so a flavor of that detail is included here. Anyone with responsibilities within one of our major social institutions who has an opportunity to examine the meaning reflected in these works and who fails to call attention to the possibility of a role for that institution, will have failed in an important responsibility. Anyone who reads the books as an individual and does not see meaning for himself or herself and who does not feel a call to action has failed to comprehend what has been read.

And so this is an exhortation to those of us in ivory towers to become directly involved and committed to solving the problems in our cities that emerge on the pages of these remarkable books. Lest you conclude that the cause is hopeless, and will just further drain the resources available to higher education, let me suggest a practical reason for undertaking this effort. The cost of public assistance, the cost of incarceration, the waste of human resources personified in drop outs who become unproductive, and the spread of the drug culture all have negative effects on higher education both in terms of lost students and public resources that could be directed to higher education. Beyond that, we have an obligation to become involved not in spite of the obvious public distaste for real intervention, but because of it. Where else in this society, besides in our colleges and universities, is there a history of windmill tilting?

Kotlowitz's work, *There Are No Children Here,* is by far the more moving of the two, perhaps because it is so personal. With Kotlowitz, we spend a little more than two years—from the late Spring of 1987 until September of 1989—with two young boys and their family living in the Henry Horner Projects in Chicago. Eight people usually live in the Rivers family apartment—La Joe, the mother, and her children Lafayette and Pharoah, younger triplets, Timothy, Tiffany and Tammie, and two older sons, Terence and Paul. Her daughter, La Shawn, has left. La Joe has, in a sense, lost her three older children to drugs and the attendant crime, and so her life now focuses on the five youngest. The two boys are 10 and 7, and the triplets are 4.

These sweet, innocent children are so surrounded by violence, death, poverty, and unfulfilled expectations that it is amazing that they have any dreams or hopes left, but they do. Pharoah and Lafayette are seen in one vignette digging in the hard ground of a mound next to the commuter railroad tracks for snakes, in hope of finding one and taking it home as a pet. When they hear a train coming though, they cower in fear, for they have heard that commuters sometimes shoot guns out the windows of the trains with unerring accuracy at neighborhood children. The commuters have heard the same about neighborhood children. And, as Kotlowitz notes, for both the boys and the commuters, the unknown was the enemy.

That is an important point, because we think we know. Many of us grew up in or near poverty. We work in urban settings. We spend time in urban schools. We see the kids. We read about drugs and sudden death and poverty, and burned out cars and homes. Sometimes we see evidence of these things, and we think we know. But, as it becomes clear in the pages of Kotlowitz, we have no idea of the lives of children on these streets. What can they think as they see their friends killed in the crossfire of a drug culture? What can they think when they hear the gunshots in the middle of the night? When the running water from a broken bathtub is so loud that sleep is impossible? When not only on television, but in real life, a few miles away in the Loop they see wealth and consumption they couldn't have imagined? Kotlowitz reports that, by the Summer of 1987, fifty-seven children had been killed in Chicago already—some in drug wars, some in fires because firemen could not reach apartments on the fourteenth floor, some in accidents. Early last Fall, on a trip to Chicago, I tried to get to—or even near— the Horner projects. I felt an overwhelming need to renew my sense of places like that; to be closer to Lafayette and Pharoah. The projects were only about five miles from the relatively plush downtown hotel where I attended a conference on fund raising for college administrators. Four taxis refused to go there. It was broad daylight.

The effect of the life described in these pages is made clear in what may appear to us to be ultimate hopelessness, but which for the Rivers family probably was matter-of-fact reality. When Kotlowitz first met Lafayette, he asked him what he wanted to be. Lafayette said, "If I grow up, I'd like to be a bus driver." Not *when,* but *if.* Kotlowitz discovered that, at age ten, Lafayette wasn't sure he'd make it to adulthood. And how does a mother cope? La Joe, who received about $930 each month through a combination of welfare and food stamps, began in the Summer of 1987 to pay $80 a month for burial insurance for Lafayette, Pharoah and the triplets. But even with this possibility of violence and death, there is hope within the children. Kotlowitz, for example, describes a dream Pharoah has, and in fact attributes the pleasantness of the dream to his anticipation of participating in a spelling bee in school:

> In it, he was a grown man looking for employment, and people down the street were calling him because they might have a job for him. Pharoah was so touched by the fantasy that he remembered the smallest of details, like the blossoming white roses he could see from his office window and his new clothes; a starched white shirt and blue tie with matching vest and pants, and spanking new black shoes. He had indeed gotten the job, and at work people started calling him "the brain." He can't recall what kind of work the job entailed, though he had "a big metal desk, a pencil sharpener, a paperweight, and papers spread all over." He does, however, remember how good the dream made him feel: "I started thinking about if I do be a lawyer or something, then I'd make a better living and my mama be outta the projects" (Kotlowitz, p. 188).

Still later, Pharoah thinks about becoming a Congressman.

And what of the schools? There can be no doubt that the schools which Kotlowitz describes are as unequal as the schools Kozol describes with respect to material things—books, paper, film, and the like. But, for these children, they do represent safety and security. Pharoah, for example, exhibits the free and outgoing side of his personality seldom seen outside of school. In the late Summer of 1987 when Chicago was in the grips of one of its teachers' strikes, the children and their mothers hoped it would end quickly. Their joy when it finally does end, and the children return to school, is clear. Schools, if they are to make a difference, must provide students with vision and with abilities that take them well beyond the traditional basic skills for which the schools can most easily be held accountable through measurement by standardized tests of mathematics and reading. There is little in Kotlowitz to suggest that the schools Pharaoh and Lafayette attend provide much more than security and comfort, along with drill and practice in the basics, as important as that may be. One of the limitations of the book is its emphasis on life outside schools. What little we see in schools makes us want to know more so we understand better the effect of this part of their lives. After all, children spend up to half the days of the year in schools. For Pharoah, who seems to be quite an able student, we find that the most exciting experience he has in school involves competition in a spelling bee. His arduous preparation for success and the importance he gives to the experience represent touching tributes to his deep drive to succeed, but the focus of his efforts suggest deep problems with the schools. No evidence is presented to show any attempt to engage children in creative or critical thinking, to consider the possibilities of life, or even to reflect on the trials of their own lives. Pharoah is involved with a summer Upward Bound experience at a local university, and we wish we could hear more about it. Pharoah embraces the experience with "energy and verve and anticipation," but we have no details of the program and its subsequent impact on his life.

Reading Kotlowitz is an emotional experience. One cannot help but become enamoured of the people, impressed by their resilience, embarrassed by their plight in this society, and left to wonder what more can be done. The identification the book engenders with these children is remarkable. I have talked to no one who has read the book who did not feel a strong need to hold these boys in their arms, as did I. For anyone whose interest is in schools, we can look at the places where we work and think about the implications of Pharoah and Lafayette's story for them. We know that schools alone cannot solve society's problems. Too many times in our history it has been expected that schools would correct the paths of urban children: help them avoid drugs, deal with the problem of children having children, overcome the malnutrition of poverty, redirect anger wrought of violence and despair, and overcome a culturally impoverished environment. The problems run too deep and are too much within the fabric of the society to be solved through one institution. Teachers in urban schools where we work look at their children and wonder why they fall asleep during school—especially when the lessons are in fact engaging and fast-paced. They would rather find socially acceptable explanations—they stayed up too late last night watching a baseball or a basketball game on television or the like. We can live with those explanations, and go on to try to make a difference. The truth may be that they can't sleep because of broken pipes, because of fear, because of gunshots, or because of unthinkable involvement in the drug culture. Those reasons are harder to deal with, but the need to try to make a difference is even more compelling. Schools remain the most accessible institution in the urban setting, and so it is likely that they will continue to be a major focus as the vehicle to help improve lives. Even Kotlowitz's own intervention with these children is primarily an effort to place them in different, presumably better, schools. Still, there are other social institutions that have significant impact on lives in cities. We do get a glimpse of some of these, and while we cannot deal with all the possibilities in this review, they are important points at which colleges might become involved in the urban problems. Those that we read of in Kotlowitz are the prisons and the welfare system. The prisons, seen through the eyes of Terence, La Joe's son, and the others who visit him, are dehumanizing places with little evidence of any efforts to help prepare those imprisoned for a new life. We don't hear of any skills programs, educational programs, or programs designed to open alternatives for these individuals. When we see the welfare system, it is a heartless, frightening, bureaucratic structure that takes away the lifeline for those who depend on it, sometimes with little reason. In La Joe's case, an article published by Kotlowitz suggested that her husband occasionally stayed at the apartment, even though he seldom did and provided no support. An investigation led to the temporary suspension of the minimal support that the family depended on. College faculty do, of course, work in such systems, but more is needed, especially in efforts to make them more human.

Kozol tells us of the savage inequalities that stand in the path of schools making a difference for kids in Chicago, in East St. Louis, in New York, in New Jersey, in Detroit, in Washington, and in Texas. For more than two hundred pages we encounter case after case of fiscal inequality and of legal efforts to correct the disparity. Schools in old ice rinks, schools without heat, schools with no books or maps or even teachers, schools without athletic facilities, schools with sewer water running through the kitchen, schools where more than half the students drop out before graduation. It seems endless. Cumulatively, the effect is devastating. One can hardly tell one setting from the another. To emphasize the degree of deprivation, we frequently are exposed to the best suburban schools, often only a few miles from the urban settings. It is clear that when society has given up on people, even—or maybe especially—the promise of public education as a means of preparation for meaningful and direct participation in the larger society is denied. In Chicago in 1988-89, years Kotlowitz writes about, we learn that the average per pupil expenditure—one of the important measures of quality of schools—was $5,265 per child while in nearby suburban districts $7,000, $8,000, and even $9,000 per child was spent. In Camden, New Jersey the expenditure in the same year was $3,538 while in Princeton it was $7,725.

The real thrust of Kozol's work on inequality is on the resources. One concludes from his accounts that we have belied both *Plessy v. Ferguson,* which found in 1896 that separate schools were constitutionally acceptable, so long as they were equal and *Brown v. Board of Education Topeka* which found in 1954 that segregation itself was unconstitutional. Kozol finds not only segregated schools, but unequal segregated schools. Of course, it is not just the schools that are segregated. It is the communities themselves, a fact that grows out of complex factors of employment, zoning, white flight, and discrimination. Kozol charges that estimates that the recent administrations in Washington have turned back social policy several decades is a vast underestimation when we look at schools. "In public schooling" he concludes, "social policy has been turned back almost one hundred years."

The descriptions of the evolution and bases for funding inequities, while their origins are reviewed more superficially than the effects of the inequality, are instructive. We learn, for example, that many urban areas have so many tax exempt institutions that 30% or more of the property is off the tax rolls. Especially disturbing, we find that in East St. Louis, large chemical companies clearly within the geographic boundaries of the community have managed to establish separate legal entities to which low taxes are paid which do not enrich impoverished nearby schools.

The history of the last decade of efforts to deal with the problems of urban schools by trying to affect the funding patterns is a history of failure. Every effort to deal with the problem, it would seem, has been turned back done way or another. In Detroit and Texas, the efforts for establishing equitable funding have not been supported by the courts. In New Jersey, a promising decision seems to have been overturned by the political will of the people. In that instance, the court found in the case of *Abbot v. Burke* that school funding in New Jersey was indeed discriminatory. Anticipating the outcome, Governor Jim Florio's administration succeeded in securing passage of the "Quality Education Act" intended in part to overcome the disparity, and, through new taxes, add some new money to education. When it became clear that some wealthier school districts would lose funding to children in Newark and Camden, the political outcry was so strong, that before it was even put in place, the bill was amended to minimize the redistribution. Subsequently, in November of 1991, the citizens of New Jersey swept in a legislature dominated by the opposition party, which claims a mandate to reconsider both the Quality Education Act and the taxes that funded it. Confronting inequality is obviously not a popular pastime. One wonders if it might have been different if every one involved had spent some time with Lafayette and Pharoah, or at least read Kotlowitz's book.

But what if schools had more resources? Kozol does not give us enough of a flavor of life in these underfunded schools to have a real sense of what must be changed. More insight into the interactions within the classrooms, offices, and hallways rather than an emphasis on the fact that the schools have fewer resources would have perhaps given a better sense of the effects of the disparity. Some of the scenes in the schools Kozol takes us to, however, cannot help but convey the degree to which these places have the potential to remove hope and to dehumanize, not unlike the prisons in Chicago. One young man in East St. Louis, who has concluded that Martin Luther King died in vain, urges Kozol to visit the bathrooms. He reports, "Four of the six toilets do not work. The toilet stalls, which are eaten away by red and brown corrosion, have no doors. The toilets have no seats. One has a rotted wooden stump. There is no paper towels and no soap. Near the door there is a loop of wire with an empty toilet-paper roll." Kids must notice that, even in this most personal and basic area, with implications for cleanliness and health, self-worth, and privacy, whoever equipped the schools didn't really care. The title, *Savage Inequalities* may have many meanings. Certainly it can, and does, mean that the inequalities in these schools are savage. It also means that the segment of society that permits schools like these to exist is itself savage. Does it also reflect how society views these children in schools, perhaps as savages who don't deserve more? Have we given up on the democratic principles underlying equal opportunity?

And so, in light of Kozol and Kotlowitz, what can the colleges do? Given the fiscal difficulties faced in most institutions of higher education, and the clear message from the voters in many states suggesting an unwillingness to suffer any personal pain in seeking a solution, one can hear the choruses across the campus saying, "It's not our problem. We don't deal with public schools—only those fools in colleges of education do that. Our college has nothing to do with preparing teachers. That's a college of education function." Furthermore, we often hear grousing in universities about the quality of their own students, and it is much easier and self-satisfying to blame the schools, teachers, and teacher educators rather than roll up our sleeves and really get involved. And so, why should we? Maybe an even harder question, assuming that we should, is what can we do?

At least three reasons why colleges and universities must make a commitment to these problems were suggested earlier. The problems are tearing at the fabric of society, and, since universities are institutions in that society, the problems have affected and will affect higher education. Second, they have an implicit moral obligation as institutions responsible for the intellectual well-being of society to bring them intellectual strengths to bear on society's most pressing problems. Finally, and perhaps most importantly, these are real people, and we cannot turn our backs on them.

What can we do? First, the culture of the university must begin to change along the lines suggested in Boyer's *Scholarship Reconsidered* so that service of a meaningful kind—especially when it adds to our knowledge and understanding of the society—counts within the reward structure of our institutions. The absence of that condition has not prevented caring faculty from becoming involved in important social issues, and our social scientists must turn again to the problems of employment, the drug culture, equal rights, housing, and the like. It is necessary that actions along these lines become the coin of the realm especially for our young and soon-to-be hired faculty. Changing expectations so that faculty are encouraged to become active by changing the reward structure will be a difficult step. It will be difficult because the changes involve altering deep seated traditional status issues related to various kinds of scholarly/service activities. But the time to make the changes in the reward structure was never better than it is now, with the likelihood of massive retirements bringing in new members of the college community who could become involved in efforts that will lead to real improvements in society.

This fundamental change in our expectations for faculty is necessary because we need far broader involvement, and in fact we need to make such involvement the expected behavior of faculty, especially for those institutions fortunate enough to be in close proximity to an urban center. The involvement needs to be from faculty across the institution. In addition to faculty in such departments as sociology helping to intervene in the drug culture, the welfare system and criminal justice system, we need anthropologists and others to help us understand the values that operate in the sub-cultures that are destructive in cities. We need artists, writers, dramatists, to involve us in these conflicting values and to help reshape the aesthetics of the city. In addition to environmental scientists who can help document the need for improvements in the quality of the physical environment, we need technologists to help preserve some of the historic beauty that is lost each year to decay. We need faculty from schools of business administration to work with small businesses to help insure their success so that employment opportunities are maintained and increased. We need all faculty to consider how their own professional interests interact with the needs and interests of those taking leadership roles in improving the quality of life in our cities.

Aside from the current reward structure in our colleges, other factors mitigate against this kind of involvement. One is the fear that outside expertise is not wanted in our urban centers. Given the response I have seen to those faculty who seek to work in the schools—an overwhelmingly positive, welcoming response—I believe that our faculty will be welcomed in their efforts, but there are indeed some risks to go along with the enormous promise. The risks have to do with putting ourselves on the line. College faculty are viewed in this society as being theorists with esoteric interests that have little to do with reality. It is likely that we will confront prejudices along these lines and expectations that this stereotype is true. We must be willing to show that we can make a difference in the real world. The benefit of success in such involvement include not only the obvious satisfaction from helping solve this destructive set of problems, but also the possibility of increasing public support for our work. With something like three-quarters of the citizenry never having graduated from college, it is amazing that they understand what we do well enough to furnish us with the kind of support we have had. Imagine the support if a national effort to solve some of these pervasive problems has some success.

Second, the easiest point of access into the urban culture is through the schools, and the schools themselves can and must do more even before the resources they need to achieve parity with the schools our children probably attend are available. One promising model to be explored is the professional development school (PDS) established in a real partnership with an institution of higher education. A professional development school has at least these four characteristics.

1. A PDS is an exemplary school or a school with exemplary programs.

2. A PDS promotes inquiry among its faculty.

3. A PDS attends to both the pre-service and in-service development of teachers.

4. A PDS has developed a collaborative relationship with a college or university.

Each of these characteristics requires some expansion and further definition.

1. A PDS is an exemplary school or a school with exemplary programs. This characteristic suggests a number of questions. Exemplary in every respect, or in some specific respects? Who determines in which respects the school is exemplary? Who determines that the school is in fact exemplary? It is proposed that to meet this characteristic, a school that aspires to be a Professional Development School must define clearly the ways in which it purports to be exemplary. All PDS's would, of course, limit their claim to being exemplary to the grade levels included, that is, they could be an exemplary elementary, middle, high school, or whatever the grade level mission might be. A PDS might define itself more specifically in terms of the kinds of students served, for example as an exemplary urban middle school. A PDS could limit the definition to specific subject areas, for example exemplary in mathematics and science instruction or in social studies instruction. Once identified, it is incumbent upon the responsible parties in the school to explain the basis for claiming status as an exemplar. This could be done in a statement that cites the basis for determining criteria for exemplary status and then provides evidence that the criteria identified are met.

In this way, the responsibility for claiming exemplary status rests with the school, but clearly an outsider could examine the grounds upon which the claim is made.

2. A PDS promotes inquiry among its faculty. In many schools, faculty are isolated and do not discuss issues of substance relevant to educational purposes and practices. In a Professional Development School, inquiry among the faculty about best practice and the principles upon which these practices are based is a characteristic. In effect, the school becomes a "community of inquiry" in which questioning and examination of practice become the norm.

3. A PDS attends to both the pre-service and in-service development of teachers. While some PDS's may have as their primary mission the in-service preparation of teachers while undertaking pre-service preparation, and others may have as their primary mission the pre-service preparation of teachers while undertaking in-service work, both are found in PDS's. This is necessary because the renewal of the schools and the renewal of teacher education are linked together, and must be simultaneously undertaken. Professional Development Schools provide one of the vehicles for such renewal.

4. A PDS has developed a collaborative relationship with a college or university. A guiding principle of a Professional Development School is that a relationship exists with a college or university which is based upon mutual trust and respect, and is seen as mutually beneficial. One model involves the appointment of key PDS staff to the college's clinical faculty, while college faculty engage in teaching and interactive work within the school on a regular and sustained basis, including an on-site college coordinator. Clearly defined roles in the policy setting and governance of the school should be part of the collaborative arrangement. Such schools usually have three characteristics: they are model schools, they are places where future teachers study, and they are places where practicing teachers learn new strategies. In making them model schools, the expertise of the entire college community is needed. Artists must help to provide real aesthetic experiences. Historians must be willing to help teach students history. Scientists must be willing to roll up their sleeves and work in science programs in these schools. Education professors must find ways to help urban districts conceptualize improved schools, finance such schools, bring their expertise to bear on its curriculum to change its focus from basic skills to issues of critical and creative thinking, and be certain that students seeking to be teachers are considering urban schools. Further, they must join in the renewal of the teachers, administrators, and other staff members already in the urban districts. In the New Jersey Quality Education Act there is a provision giving broad dispensation to urban schools from limiting regulations so there can be no excuses. Biology professors, for example, cannot be barred from working with an inner-city class because they are not certified. If there is a belief that they can contribute, they are welcome. Partnerships to foster these school must be university-wide commitments, with presidents and provosts at the lead. Arts and science faculty, education faculty and others must join in true partnership to make them work. There are examples of successes. But we must care enough to take real risks to make the idea work.

Can professional development schools work in urban areas? They can, and are. New Jersey, for example, has opened its first professional development school, the Harold A. Wilson Middle School for Professional Development as a partnership between the Newark Board of Education, the Newark Teachers' Union and Montclair State College. This middle school is devoted to the simultaneous renewal of schooling and the education of educators. Teachers from other Newark Schools spend five week mini-sabbaticals studying with some of Newark's most effective teachers, staff developers and Montclair State College faculty. One of the themes of the development program is critical thinking, and a number of the resident teachers and coordinators in that school have attended workshops on critical thinking through programs sponsored by the Institute for Critical Thinking. The school is in fact a neighborhood school, located in one of the most impacted areas of the city, where the lives of children are not unlike the lives of Lafayette and Pharoah. The conception of a school devoted to evoking professionalism among teachers, to promoting professional inquiry, to inducting teachers into the profession in examplary settings is exciting and promising and needs to be encouraged across the nation, especially in urban settings.

Third, there is teacher education. The potential for what John Goodlad has called the simultaneous renewal of schools and teacher education is very real. For one thing, there will be enormous turnover in the teaching force within the next decade, but what will the new teachers we prepare look like? We need now to undertake a renewal of our teacher education programs along the lines Goodlad suggests in *Teachers for Our Nation's Schools* (Jossey Bass: San Francisco, 1990). First, we must be certain that those responsible for the education of educators understand what is possible for schools in a political democracy. We must be sure that we haven't given up, and that we know what real change is possible. Next, teacher education must become a university-wide responsibility. The bulk of the education of all new teachers is in the hands of our arts and science faculty. The quality of that instruction is critical. It must be instruction that leads to and models critical thinking and problem solving that, as Goodlad suggests, enables students to enter the human conversation. We need to overcome the "prestige deprivation" endemic in teacher education. The elitist perspective that dismisses the importance of teacher education, along with teaching and teachers, seems to grow from deep disrespect for the schools in which our students are educated, and extends to denegrating the choice to become a teacher, especially when it is made by our best students. We need to prepare students to be stewards of the schools, as Goodlad says. Good teachers cannot quietly accept the inequality that surrounds them. They need to understand what is possible in schools, to speak out, to seize control. Here too, there is a clear, direct role for college faculty. We have the perspective that can help teachers understand the inequalities that surround them and that become so pervasive as to be invisible. Many urban teachers have limited perspectives, their reference point for excellence often being the schools their own children attend. To truly become a steward of the best practices, our teachers need to broaden their perspectives, a process in which college faculty can be enormously helpful. In Kozol's work, a courageous high school English teacher in Paterson New Jersey, Alfred Weiss, speaks out about the substitution of basic skills for literature, about the incongruity of a principal with a bull horn, about the failure of the bureaucrats to meet the real needs of students. Al Weiss speaks as a steward of the school in which he works, but we need many, many more like him, and we need to support his efforts in every way possible. Opportunities for colleges and schools to join together to help promote effective decision making among teachers and a commitment to the stewardship of best practice are increasing even in the face of budget crises. But renewing teacher education, important as that is, is not enough to renew urban schools, because so few of our best graduates in teacher education seek to work in those schools. A two-pronged approach is needed. On the one hand, we need to dramatically increase the number of minority students in our teacher education programs, not only because their historic absence speaks to discrimination, but because the role models they represent are critically needed in urban schools. On the other hand, we need to provide positive urban experiences for our majority teacher education students so they can make an informed choice about teaching in an urban school, not one as distant from reality as the fears of the commuters riding from downtown Chicago past Lafayette and Pharoah.

Taken together, Kotlowitz and Kozol leave the reader exhausted, depressed, disgusted, but, hopefully, more ready to take responsibility and action than ever before. A popular song, recently sung by a young African American woman, Schamika Grant, at an eighth grade graduation in Newark includes this line, "Give me one moment in time, when I'm more than I thought I could be, when all of my dreams are a heart beat away and the answers are all up to me." ("One Moment in Time." Albert Hammond and John Bettis Music, 1987, 1988.) We must not forget that until this nation is truly a social and political democracy, the answers are not all up to the children graduating from urban schools, or struggling to even reach the point of graduation. The answers are up to us all, and every stakeholder in the future of this nation, especially those with power like faculty and administrators in higher education, have an enormous obligation and opportunity. There may be only one moment in time left for us to assume the moral responsibility to confront inequality and seek to make a difference.

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TEACHING IS CRITICAL

Mark Weinstein

This paper began as a title. The ambiguity of the phrase seduced me by its possibilities. This created a problem. The title set a theme, and by its "cleverness," a tone. The task the title defined proved to be daunting. The wealth of possibilities blocked my first attempts to focus the paper on particular issues. How was I to deal with the title's ambiguity? What aspects of its many meanings and connotations would I choose? What connections would I exhibit? What insights would the various meanings support? In desperation, I traced the ambiguity to its source; I looked up "critical" in a dictionary. I found far more than I bargained for.

The word "critical" is given nine entries in *the American Heritage Dictionary:*

> 1. Inclined to judge severely and adversely. 2. Characterized by careful and exact evaluation and judgment: *a critical reading*. 3. Of, pertaining to, or characteristic of critics or criticism: *critical writings on Milton*. 4. Forming or having the nature of a crisis; crucial: *a critical point in the campaign*. 5. Designating materials and products essential to a condition or project but in short supply. 6. *Med.* Of or pertaining to a crisis. 7. *Math.* Of or pertaining to a point at which a curve has a maximum, minimum, or point of inflection. 8. *Chem. & Physics.* Of or pertaining to a condition causing an abrupt change in a quality, property, or phenomenon. 9. Of sufficient mass to sustain a nuclear chain reaction.*

* *The American Heritage Dictionary, Second College Edition.* Boston: Houghton Mifflin, 1985.

The entries reflect both ordinary and technical uses of the term. They are equally provocative. The ordinary uses of the term, not unexpectedly, point to issues and insights central to recent discussions of education, and particularly to the concerns of those who identify themselves as part of the critical thinking movement. The technical uses, although tied to particular contexts and fields, do so as well. They furnish metaphors that enlarge the discussion, by making additional dimensions of educational theory and practice appear. How to organize this wealth of possibilities. Failing inspiration, I turn to a mechanical solution.

What I will do in the following is use the definition as an organizing framework. First I cite each entry in turn. Each prompts an open question: Teaching is critical, in this sense, in what regards? The various questions suggest likely answers. The answers indicate options. For each dictionary entry I will choose only one, what I take as the most significant option that the entry indicates. My choice of options yields why I take teaching to be critical; yet there is something arbitrary in my practice. The option I chose reflects my own sense of the most significant issues that the various entries illuminate. I will try to indicate, briefly, why I pick the particular ones that I do, but do not discuss the options not selected. No doubt, the choices reflect my commitment to critical thinking. I will not, however, attempt to trace out an underlying theory, if indeed one exists — hoping instead that whatever coherence my intuitions have will appear as I articulate my choices. For those familiar with the analysis of critical thinking most used at the Institute for Critical Thinking — critical thinking is skillful, responsible thinking, conducive to judgment, that relies on criteria, is self-correcting, and is sensitive to context — my focus is more on context than on criteria.

Besides critical thinking, there is another underlying current in my thoughts. I have a deep and abiding confidence in the professional capacities of teachers. This comes, mainly, from more than a decade of work with practicing teachers. It may be no more than a prejudice, but it reflects my experiences working with teachers and the respect I have for their wisdom. I have, perhaps, an even greater regard for their humanity. Teachers, it seems safe to say, love their pupils. Even with burnout, even with frustration and cynicism, teachers have deep personal commitment to their students. Greatest, perhaps, in the lower grades, wherein teachers see themselves as obliged to address the intrinsic worth of their pupils — the capacities that children bring to the schools. As significant in the upper grades, teachers feel impelled to save their students from society and themselves. Given this much by way of introduction, I turn to the particulars.

Teaching is critical in the sense of:

1. Inclined to judge severely and adversely.

In what sense is this plausible? In particular: what should be the object of our severe criticism? The following seems a plausible list of possibilities: students; teachers; curriculum; schools; educational objectives; and social policy and institutions. I chose curriculum.

Each of the items listed as possibilities have, at times, been the subject of severe criticism. But the point here is not merely what deserves severe criticism, but rather, which of these does our concern with teaching involve? The point of severe criticism is to identify serious failings. This requires more than a casual relationship to that which is criticized. If the severe critic is to be seen as helpful, he or she must be in a position of authority, in respect to the object criticized. Severe criticism should reflect special understanding and willingness to engage in constructive remediation. My choice for the object of severe criticism from the perspective of teaching is curriculum.

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Recent decades have seen curriculum move from the hands of teachers and into the control of professional curriculum developers. This reflected the belief that special expertise was required to develop curriculum, expertise available from psychologists who studied learning and from the most knowledgeable members of the various fields. Teachers were then seen as instrumentalities for delivering set curricula, and thus were trained in general strategies appropriate to teaching at particular levels. This in my view is a catastrophe, resulting in the deprofessionalization of teachers and the loss of much that was valuable in schooling. Breaking the connection between teachers and curriculum has resulted in teachers whose expertise is devalued, and whose experience is no longer an effective force in curriculum decision making. It has kept teachers from focusing on what they see as most significant for their students in the disciplines they teach, and from responding with appropriate flexibility to the particular needs of individual students and classes. How can this be changed?

Teachers must stop being passive in the face of curriculum. They must make their experiences known, for it is only their experience that can validate the effectiveness of curriculum in the varying and changing contexts of actual classrooms. Teachers must share their insights with other teachers and come to an informed understanding of what works in which contexts. They must reserve the right to modify curriculum materials. They must be included in the curriculum decision process.

My recommendation reflects the particularity of educational contexts. No overarching theory of learning can account for the vagaries of teaching in the enormous variety of actual educational contexts. Theories of learning have been statistically driven, either reflecting analyses of large populations, or restricted experimental or quasi-experimental studies. Statistical analysis sees the effect of a particular variable in varying contexts, by showing effects that stand out against the background of the innumerable variables that cannot be considered. This may indicate tendencies, but does not account for actual situations where the interaction of local variables change the contour of teaching and learning. It is teachers who have the relevant professional experience within such interactive multi-variate situations. This experience is holistic; variables are not isolated, whether through design or through analysis. Nevertheless, variables can be identified and the interactions monitored in the shifting realities day-to-day. This requires professional judgment: seeing a complex situation through an informed understanding that identifies many of the salient variables, monitors their interaction, and is always sensitive to the new and surprising. Such judgment grows out of lived experience; it is the stuff of professional expertise. It relies on ambiguous factors, on informed and selective perceptions, on monitoring effects in natural settings, on setting up and assessing innumerable feed-back loops, on offering tentative and holistic evaluations, and on establishing criteria, and modifying them as the case requires. It is on the basis of teachers' experience that curriculum recommendations ought to be assessed.

***2. Characterized by careful and exact evaluation and judgment:* a critical reading.**

What sort of exact evaluations is teaching critical for? Again, a similar list of possible candidates recommends itself: students; teachers; curricula and methods; school systems; educational objectives; and society (families, religions, government). I chose students. My sense is that teachers are best situated to furnish the careful evaluations of students that is at the heart of educational assessment. It is the expertise of teachers, serving as a complement to that of educational testers, that is lacking in the exact evaluation of students.

This claim goes against the tradition that sees exact evaluation as requiring expertise in testing, and the employment of standardized instruments. Testing through the application of standardized tests to large populations has the advantage of showing tendencies. As indicated above, statistical analysis of student performances permits particular variables to stand out against the background of complex situations that may have little in common, other than the variable operationally defined through the uniform application of a standardized instruments. But such testing, although indicative of some things, leaves others obscure. In particular, it fails to inform about complexes of variables in interaction. And it is this latter that characterizes real learning. Individual students' performances reflect particular and unique complexes of factors, any one of which may influence learning to some degree within the context of the interacting others. An image of such a complex interaction is obscured by standardized tests, where the large numbers of subjects permit the tendency exhibited by the population at large to swamp the effect of confounding variables. But, it is just such confounding variables that are characteristic of individual learners in real contexts.

To understand the complex that constitutes real learning, individuals must be looked at within realistic settings, and the tendencies indicated by standardized testing checked for their applicability to cases of particular sorts. This requires that teachers look at the effect of teaching on individuals by assessing the many variables in combination that are reflected in real school tasks. This calls for a new approach to assessment. Teachers must be helped to apply essentially qualitative research techniques and multi-factor assessment strategies to their students, so that realistic assessment of teaching effectiveness will result. Careful and exact evaluation must no longer be limited to statistical techniques that isolate variables and disregard context. Instead, evaluation strategies that describe complex realities must be developed and refined so that the actual complex of factors that determine the varied learning of students can be identified and used to inform practice.

Much work of this sort has been begun. It is beginning to be increasingly apparent in the professional literature. But it is still the exception, rather than the rule. The role of teachers in student assessment requires additional considerations to be addressed. In particular, teachers' intellectual efforts have to be supported and valorized. Teachers must be given professional tasks and respected as professionals. This leads us to the next entries and broadens our focus on social science methodology to include more encompassing social concerns.

3. ***Of, pertaining to, or characteristic of critics or criticism:* critical writings on Milton.**

What sort of critical writing should be the result of teaching? Possibilities include: technical essays; popular essays; textbooks; curriculum materials; descriptions of projects; educational manifestos; and social policies. All of these are relevant, and all are possible. What seems crucial, at this point, is descriptions of projects.

If teachers are to earn the respect they deserve, their practice must form the basis for the assessment of their accomplishments. This requires that teachers report on the results of their practice. Teachers must engage in "action research," and offer the results of their efforts to the larger community. Teachers must document their practice in support of their curricular choices and in response to their careful estimation of student outcomes. If I am correct in my earlier choices, the evidence for curricular practices in light of student achievement must be presented in the full complexity and particularity of the situations within which they occur. Teachers must increasingly offer the educational [illegible] the complex multi-variate situations within which their pract[illegible] fruit. Education literature should increasingly reflect the particulars, and be less concerned with the presentation of generalizations codified as universal maxims. The apparent simplicity of generalized strategies and uniform curriculum must give way to the exhibition of the particular interactions of many variables as they interact in relatively unique settings.

Educators have been swamped with statistical analyses for decades. Although each study pretends towards generality, the result has been more divergence than convergence. Despite the use of sophisticated designs, experimental results in education offer no single image of the field. The picture that has resulted from decades of experimental study points to a methodological confusion. If my discussion so far seems plausible, the confusion is apparent. The complex situations that teaching involves confuses the effects of particular variables in particular contexts. Although statistically significant trends may appear as the result of standardized testing and other large scale measures, there is no reason to think that these trends will characterize particular instructional situations where the interaction of many variables is more educationally significant then the variables that stand out as statistically significant in studies where the interaction of complexes is swamped by statistical effects. The confusion is between knowledge of trends and applications in cases. Thus we are faced with a welter of conflicting results. This is of more than epistemological significance, it has ethical consequences as well.

In domains where aggregate value compensates for individual loss, life insurance most typically, statistical analysis of trends is a perfect decision making method. In domains where the application to individual cases is paramount, where success and failure in cases can not be compensated for elsewhere, statistical analysis is at best suggestive. What works in general is no surrogate for what works in particular. We cannot accept failing here because we succeed elsewhere. Education is not an aggregate value; its value is for particular individuals in particular settings. We cannot justify employing strategies because they are generally effective in contexts where the particulars cause them to fail. Thus, if educational research is to be relevant to teaching practice, it must move towards the analysis of complex situations, using methodology appropriate to the description of complex interactions, rather than methodologies that abstract from complexes to highlight variables that are statistically significant on a large scale.

Teachers must be educated and supported in performing such, essentially, qualitative research. Such research may use statistics as a secondary tool, but its primary method is qualitative analysis case studies of actual practice. Given a body of qualitative research that yields approximate numbers, meta-analysis may yield interesting possible generalizations. But, what is needed now is focus on the actual descriptions of the concrete realities that constitute teaching. These are descriptions that teachers must be helped to make. They are complex, narrative and longitudinal. They focus on the particular as exemplifications, and are necessarily tied to the exceptional and to the anomalous. Teachers must learn to be comfortable with heuristics rather than algorithms, must trace the range of particular variability, and be unceasingly on guard against hasty generalizations and specious universal claims.

4. Forming or having the nature of a crisis; crucial: **a critical point in the campaign.**

What constitutes the crisis in teaching? Is it the failure to achieve results such as a competitive workforce; the exclusion of groups; the breakdown of educational paradigms; or the inability to respond to social change? All of these are reflect educational disarray. But, what seems to me to be most crucial is the breakdown of educational paradigms.

Education is exceptionally responsive to social currents, and the diversity of society's participants has placed increasing demands on the educator to better reflect the needs and perceptions of the many constituencies, students, parents and politicians that have an interest in educational practices. In addition, deep theoretic currents support the social trends that emphasize difference. Feminism, most obviously, but post-modernism and various ethnocentrisms have called into question the hegemony of perspective and values that characterized education until recently. Building upon both radical and reformist tendencies in education, recent theoretical work has called for rethinking what is to be included in the curriculum and the role of education, heretofore seen mainly in terms of social reproduction, and the development of students initiated into a unitary framework of values, attitudes and beliefs.

The breakdown of uniform and hegemonic paradigms for education raises a host of problems that is at the center of educational controversy. No longer able to rely on traditional curricula that silence many of the voices that make up our culture, educators are faced with a welter of options that tend towards particularism and relativism. The old paradigm of social uniformity, parading as universalism, must be replaced by a paradigm that valorizes the many and varying contributions of individuals and groups, but yet resists the fragmentation of learning that would cloak it with the appearance of arbitrariness. A unifying mosaic must replace hegemonic uniformity that ignores the many facets of contemporary and historical society. How to build such a unifying mosaic is the most pressing question facing education today.

My recommendation sees a greater role for teachers. Teachers must be helped to perform essential intellectual roles. They must reflect their best professional sense of what particular educational contexts require. This requires that teacher education and the professional contexts that teachers inhabit reflect the needs of teachers' active professional engagement. Such a new paradigm of education with teachers at the core is based on the centrality of particularity. It, therefore, sees an active role for all those who reflect the complex educational realities in particular contexts. Thus, teachers must reach out to parents and other interested members of the community. Liaisons with institutions of higher education that jointly renew teacher education programs are called for as well. Finally, administrators must join with teachers to address the problems of instructional design. The school manager must give way to the instructional leader, and administrator who facilitates and coordinates teachers' efforts in light of community concerns.

5. Designating materials and products essential to a condition or project but in short supply.

What is in short supply? In terms of teaching, is it money; appropriate techniques; well-prepared students; supportive families; government regulations; or professional status and perquisites? I chose professional status and perquisites.

Although all of the other elements have been at varying degrees of short supply during the recent history of education, nothing seems lacking as much as professional status and the perquisites such status implies. As mentioned earlier the attempt to "professionalize" education by relying on experts to the exclusion of classroom teachers, resulted in the chimera of the "teacher-proof" curriculum, as well as a shift in the balance between teachers and administrators, teachers and parents, and ultimately, teachers and students. The authority that was lost when teachers were removed from the center of professional decision making has had negative consequences for the effectiveness of teachers, and from there, the effectiveness of education.

If teachers are to regain their role at the center of educational process their professional status must be improved. This includes, but is not limited to, the availability of professional education, an environment that is open to teachers' suggestions and expertise, ample opportunities for professional interaction among teachers, and forums through which teachers views can be published and afforded professional scrutiny.

Needless to say perquisites such as ample time for professional interaction and curriculum development will involve added costs in education, as well the cost of professional education. Nevertheless, if professional growth is seen as necessary, such costs must be borne. But, it is not the money that is in short supply. Rather it is the political will that would reflect the status of teachers who are owed their due as professionals.

6. Med. Of or pertaining to a crisis.

What are the symptoms of the system in crisis: dropouts; alienation; apathy; political pressures; multi-culturalism? I chose alienation.

What threatens education most is the sense of many that it is irrelevant to their own growth, that is at most an expedient that speaks to instrumental needs, and at worst a meaningless ritual that must be tolerated. Such alienation is not limited to students; it is reflected in teacher "burn out" and in administrators who see themselves as building managers rather than as instructional leaders.

Alienation from education can only be addressed if the essential social role of education is reconfigured in light of the most profound needs of contemporary society. These I see to be the increasing availability of political and economic opportunity for all citizens, and access to the most productive life that such opportunity provides. This requires that all who participate in education move beyond the mere instrumental goals of training and social conformity, and begin to address the deep human quagmire that inequality and exclusion has generated.

It is not uncontroversial to place education at the center of the social maelstrom. Education, it is frequently argued, cannot be held responsible for curing all of the ills of society. That is true, but yet education, as constituted by legislation that requires integration, is uniquely situated to open the experiences of each to all. If teaching draws upon the lived experiences of students and relates these to the larger issues of human beings, students can see reflections of their lives in the lives of others, see connections between themselves and those that they see as other, can see possibilities for personal growth and for community.

7. Math. Of or pertaining to a point at which a curve has a maximum, minimum, or point of inflection.

Where are we on the curve? Where is the "turning point"? I see the educational system as having reached a point at which it is most susceptible to redirection. Education has been governed by two competing intuitions. The first is the conservative ideal of excellence; the second the liberal ideal of inclusion. The former has resulted in education setting hurdles against which individuals are to be judged. The best were awarded with inclusion as the leaders of society; the remainder tracked into roles for which education was not needed and for which social rewards were comparatively meager. Against this is an ideal that sees social decisions as requiring the greatest participation and social wisdom as reflecting the widest range of perspectives. Education on this latter model seeks to address the various needs and understandings of all members of the society. Rather than placing restrictions, it seeks to offer benefits.

Although each of these intuitions has been, to a greater or lesser degree, operating in education, the social crisis we now face points to the need for the liberal perspective to be given greater prominence. Society can no longer afford the disenfranchised, even if it is willing to morally tolerate their distress. The society cannot afford the cost of generations of unproductive citizens, cannot manage the hosts of alienated students, and cannot tolerate the cost in ruined lives. We can no longer afford a limited focus on the celebration of the views and experiences at the center of our cultural myth. For the center is increasingly irrelevant to those who must be included if the society is to continue to grow and prosper. Educators must look to the periphery: to the experiences of the disenfranchised, to those individuals and groups who represent the struggle for social justice. It is such struggles that are most relevant to our students, who, alienated from their own potential, grasp shallow materialist alternatives, drugs and possessions, sex and violence.

Society has been willing to accept the moral horror of the disenfranchised when the compensation was a better life for the rest. This is no longer tenable. The theories that supported Eurocentric, male dominated visions of the good life are in retreat, as a new wave of intellectual understanding confronts universalism with the reality of its own situatedness. But this is the academic veneer. Post-modernism and multiculturalism owe their strength to the realities of social and cultural change, to the catastrophes of political and social arrogance, and to the availability, through mass media, of those experiences that traditional academic disciplines can no longer disregard. This is nowhere more apparent than in our schools. The schools reflect the complex failings of our society; they also reflect the enormous possibilities that its diversity includes. Many of us are moving towards a deeper appreciation of this diversity. This reflects both understanding, and the imperatives of social, political and economic realities. The cumulative weight of these forces constitutes the turning point in teaching.

8. Chem. & Physics. Of or pertaining to a condition causing an abrupt change in quality, property, or phenomenon.

Are the conditions for a "change of state" in place? If we continue in the direction just indicated, we move towards a truly radical pluralistic democracy. This will result in a dramatic change in the quality of education. In addition to common values, education will call attention to particular approaches to the problems of life and culture. In addition to the mainstream experiences of those who have been best served through the growth of society, we will focus on those who have suffered injustice. More than accomplishments of the successful, the struggles of those who fought the inequities in the social and economic systems will be at the center of educational concerns.

9. Of sufficient mass to sustain a nuclear chain reaction.

What is the "critical mass" needed? Can teachers help to redirect society from its relative disregard of the excluded? Or do we need much more than teachers and teaching can contribute? Teaching is critical; necessary, but not sufficient. What is needed, in addition, is a broad based alliance among teachers, members of the community, progressive politicians, and higher education. The theories that support diversity must be enunciated and made available to the general public. The social needs that reflect past inequities must be seen throughout the lens of the history of the struggle of those who have moved society towards greater access to political, social, and economic goods.

Teachers must move their students towards a better appreciation of the need for democratic participation, and the political and social possibilities that greater participation affords. This must be supported by political change and therefore must involve politicians who have the courage to face the inequities that have characterized so much of our history. With a better informed and more socially conscious electorate, the numbers of progressive-minded politicians will increase. Business must also be helped to see the value of education that prepares citizens for a more productive role in the economic life of the community. Families must see the possibility of decreasing apathy and alienation, and all must see the possibility of community within and among all sectors of society.

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GOALS AND PURPOSES

Goals and Purposes

This section of the Proceedings directs our attention to the underlying traditional frameworks within which we understand educational aims and goals, ideas and ideals, and to alternative possibilities for deriving meaning. Inquiry into these fundamental concerns are demanded by the current movement toward critical thinking as an educational goal. At the very least, critical thinking requires continual self-reflection; on the meanings of our common and personal histories, on our present customs and actions, and on our intentions for the future.

Andrew Chrucky, in "Trying to Understand the Program of Educational Reform through Critical Thinking Across the Disciplines," provides a thoughtful summary and critique of some of the educational ideas inherent in the work of the Institute for Critical Thinking itself. In presenting his analysis, he discusses absolute vs. relative educational ideals, the purposes of liberal education, the functions of normative philosophy in educational thought, and the role of disciplinary processes. Chrucky warns against substituting rhetoric for logic. He highlights many of the tensions that accompany applications of educational theory to practice in a pluralistic society.

In "Two Views of Democracy: Implications for Education," George Bernstein raises questions about our understanding of the democratic principles most of us ordinarily take for granted. Such unreflective subscription to conceptions about democracy may, he suggests, inform our educational practices in ways that are misleading. How, in fact, can and should democracy and education be related? How can, or should, "politics" and "participatory democracy" be related? The ideals of liberation, consciousness, and community of Paolo Freire are discussed. Bernstein cites Soviet educational history and debates over educational goals, in contrast with the current educational dilemmas in the United States. "If one assumes it makes sense to educate for democracy, it is legitimate to ask, at the very least, what kind of democracy one is talking about. . .When today in the United States there are advocates of democracy in education, they are not necessarily in agreement about either the nature of democracy or education."

In "Matters of Iteracy, Matters of Literacy," Bernard Josefsberg shares with us his retrospective autobiographical account of an educational experience, which revealed his youthful reliance on the imperatives represented by the social customs and intellectual conventions and values of the time. Citing Dewey and Arendt, Josefsberg suggests that we are a "public-less society, establishing behavioral expectations which exclude spontaneity and fail to provide a common forum for challenging traditional ideas.What factors, Josefsberg wonders, "converged with such power to impress conventional categories of thought upon a malleable mind self-convinced that it was engaging in thought by internalizing those categories?

Michael Kagan, in "Teaching Philosophy as a Matter of Life and Death," also touches on the autobiographical. He points out the need for care and sensitivity when students choose to struggle with real life personal experiences that threaten their own belief systems as content for academic analysis in college courses. Kagan makes several practical suggestions to instructors for identifying and handling these situations.

Rev. John J. Conley, in "A Critical Pedagogy of Virtue," reviews three conventional, pragmatic approaches to education. He calls our attention to "virtue theory," derived originally from medieval Christian tradition. Virtue theory distinguishes between speculative intellectual virtues, such as science, understanding, and wisdom, and practical intellectual virtues, including prudence and art. Moral crises, for instance require a capacity for prudence, which along with temperance, fortitude, and justice, are cardinal virtues. Rev. Conley discusses religious virtues as well, and recommends the virtue model of education for its stress on the integral development of the student and the formation of human character as the central goal of education. However, virtue theory is problematic in pluralistic societies such as our own, which pose a "challenge for the contemporary retrieval of virtue education," Rev. Conley indicates.

In "The Case for Intellectual Rights in the Formation of Justifiable Values," Bertram Bandman, using the framework of democratic values, argues that "intellectual rights and virtues help advance legal, moral, and political rights... These rights strengthen democratic values and institutions and the educational formation of rights-based democratic values, and through teaching, provide justifiable criteria for distinguishing between right and wrong. Bandman notes that the "consent of the governed" cannot be given without the right to know, which in turn generates the right to inquiry, to infer, to believe, and to decide.

Marcia Sachs Littell, in "The Role of the University in Tolerating, Supporting, or Opposing Positions of 'Political Correctness'" cites the university intellectuals during the period of Nazi Germany who "made themselves technicians rather than persons of wisdom,...accommodating to the spirit of the times and the demands of the Nazi movement." Littell indicates that the response of many academics, scientists, and other professionals during the Nazi era was a focus on technical expertise and a false sense that "academics and politics could be divorced." She warns of potential for failure in the university in integrity, self discipline, and moral and ethical relevance in the current issues surrounding "political correctness."

In "Mathematical Investigations: A Course in Critical Thinking," Gail Kaplan calls our attention to the goals of instruction in non-major courses; in this case, mathematics. She describes the purpose of such a course as "for the student to learn to explore a problem in the same manner as a mathematician, not for the students to learn any particular mathematical fact." Emphasis is placed on active student participation in the exploration of mathematical ideas.

Philip Vassallo, in "Whose Writing is It Anyway?" recommends procedures that allow the teacher to construct a curriculum based on what the student wants to learn rather than what the professor knows best. Taking each student's background into consideration in relation to the syllabus and assignments, Vassello encourages teachers to address the "on-the-job problems with which their [business] students are struggling, through group discussion, individual conferences, and writing and research assignments."

TRYING TO UNDERSTAND THE PROGRAM OF EDUCATIONAL REFORM THROUGH CRITICAL THINKING ACROSS THE DISCIPLINES

Andrew Chrucky

My paper is a reaction to the articles in the newsletter *Inquiry*, and additional articles by others, especially Mark Weinstein, the Associate Director of the Institute for Critical Thinking at Montclair State College. Weinstein and his colleagues are engaged in a most ambitious program, as they put it, of educational reform through critical thinking across the disciplines. Without doubt, the ideologue of this school is Weinstein, and it is on his writings that I have concentrated.

Weinstein is dissatisfied with critical thinking courses, informal logic courses, and logic courses as given by philosophy departments. His reasons are that they are inadequate by omitting the contexts of specific inquiry, and that as they are taught their contents are not in fact transferred to other disciplines.[1] It is clear to me that Weinstein is proposing that various disciplines are to be taught in a critical manner. But I am not clear about how Weinstein justifies his claims and about how he proposes to implement them.

I. Absolute vs. Relative Educational Ideals

Mark Weinstein's articles express a relativized philosophy of education; they do not necessarily express Weinstein's full-fledged philosophy of education. This is so because Weinstein has to take into account what he is being employed to do. His objective is to reform education as it presently exists.[2] He is not employed, I take it, to write about an educational utopia in the manner of Plato's *Republic*, More's *Utopia*, or Skinner's *Walden Two*. His problem is not to describe an ideal educational community; his problem is to recommend improvements to the *de facto* educational community. The scope of his solution is restricted to the extent, I think, that it would be impractical for him to propose, for example, the Great Books program as practiced by St. John's University, which attempts to embody Mortimer Adler's *Paidea* project.

As a consequence, there is a hint of a tension in Weinstein's writings between an absolute ideal and a relative ideal. An absolute educational ideal would be set in an ideal society — whatever that would be: possibly socialistic, possibly agrarian, and possibly operating in a different type of democracy. The relative ideal which Weinstein has to work with is set in the context of a Christian, capitalistic, technological society, operating with the type of representative democracy we happen to have. Specifically his problem is to improve education at institutions such as Montclair State College. However, mingled in his writings there is an occasional call for a critical examination of the political, economic, and sociological setting of college teaching generally, and he suggests such a multilogical problem, as he would call it, for some courses.[3] But as far as I can discern, Weinstein does not offer such a broad educational critique — at least not in anything of his that I have read. Yet given his obvious interest in the historicity and sociology of science practice, it is obvious that he would give a similar treatment to educational institutions as well.

II. The Aims of Liberal Education

Colleges and universities such as Montclair State College are divided into relatively isolated departments, and such institutions are trying to accomplish three objectives: (1) provide a liberal arts education, (2) prepare for various professions, (3) prepare researchers. Whether these three tasks should be undertaken by one institution in the manner usually done is a very important problem which cannot be considered here. However, these three tasks of a university should be distinguished and compared. Since Weinstein does not do this, his prescriptions, which I take are appropriate for a liberal arts education and apply across the liberal arts disciplines, do not necessary apply to the other objectives which may require training rather than critical thinking—as for example, learning a word processing computer program, or studying human anatomy.

Let us assume then that Weinstein is interested in reforming liberal arts education. What is the goal of a liberal arts education? Weinstein says that the ideal is the education of critical thinkers. Perhaps this is the appropriate thing to say in a relativized philosophy of education, but as far as I am concerned, it is not the first nor even the second thing to say in an absolute philosophy of education. In order to make this clear, I will elaborate on my own view of liberal education.

Liberal arts education, in my view, should aim at the education of an ideal citizen. So put, I am immediately faced with two problems. The first problem is to specify whether the citizen is to be a citizen of a secular city or, as St. Augustine would put it, the city of God. The second problem is whether the citizen is to be the citizen of a country or the citizen of a community of all rational creatures. My proposal is that liberal education should educate for citizenship in the secular city composed of all rational creatures.

My next problem is to specify the nature of the ideal citizen. The main characteristic of the ideal citizen would be his concern with promoting the common good of all rational creatures, which is just another way of characterizing a moral human being. And note that nothing has yet been said about critical thinking. If you ask me to choose between a society of people composed of critical thinkers who are indifferent to the common good, and a society of uncritical thinkers who are interested in promoting the common good, I will choose the latter, and I will favor an education that fosters uncritical moral human beings rather than critical amoral or immoral human beings. Liberal education, in my view, should be primarily education for morality and not for critical thinking.

The next problem concerns the topic of moral education. Weinstein expresses scepticism about the work of Jean Piaget and Lawrence Kohlberg on cognitive development. Evidently he believes that children can engage in critical discussion before their time, so to speak. Whether this is so or not, there is some time—let's say before five years of age—when children are not moved by reasons. Everyone, I think, agrees that during this time children need to be trained and indoctrinated. Moral training should be and is continued in later years by various social pressures, and in extreme cases by the penalty of law. Morality begins with the training of appropriate habits, and as Aristotle wrote in the *Nicomachean Ethics*: "It makes no small difference, then, whether we form habits of one kind or of another from our very youth; it makes a very great difference, or rather *all* the difference. (1103b25)" Citing Aristotle on this, Michael Levin, a professor of philosophy at CCNY, wrote in a letter to the *New York Times* charging that courses in Ethics, if they are geared to moral education, are generally a waste of time. I agree. The function of such course should be, as is the *Nicomachean Ethics* itself, a critical justification and rounding off of our *de facto* moral training; and a prescription for moral training.

Where does critical thinking come in? Society should aim primarily at the education of citizens who have the common good as their primary intention. This is a necessary characteristic of an ideal citizen — it is, however, not sufficient. Good intentions do not guarantee proper actions or even any action at all. Not only must our ideal citizen be motivated by the intention to promote the general good, but he must be supplied with the right type of character for persisting in carrying out his intentions. He should not succumb to his private interests, lose perseverance, or succumb to fear. In short, our ideal citizen should have moral virtues. But is this enough? No. Such a person may have the right intentions, and the right character, but be ignorant or naive about what needs to be done to promote the common good, or even about what constitutes the common good. Since our citizen will be bombarded with information on television, the radio, newspapers, magazines, conversations with family, friends, acquaintances, religious leaders, teachers, advertisers, etc., and given his goal of promoting the common good, he must know where to get needed information, to choose relevant, important information, and be able to understand and to make appropriate inferences. Since he will also be subject to falsehoods and to misinformation, he must also be able to understand and to judge the merits of the way the information is discovered and presented.

Our ideal citizen then will satisfy three criteria: he must have the intention of fostering the public good, and possess what we may call, following Aristotle, the moral and intellectual virtues. He will, in short, be a moral, wise individual.

If there is a failing in liberal education, it must be a failing to produce ideal citizens of this type since it is currently producing self-centered, dependent individuals who lack moral or even intellectual virtues. The agenda, therefore, must be to produce the ideal citizen through social reform.

Suppose for the sake of argument we grant that the failure to produce the ideal citizen is not solely a problem of formal education, that it could be a political failure, a cultural failure, or whatever: still we can ask what is the failing of formal education in this process. There are all sorts of possible reasons for educational failure: poor teachers, poor students, poor courses, poor sequence of courses, too many students per teacher, etc.

A major problem for all types of higher education, as I see it, is that it has been transformed into a commercial enterprise. It is run like a business. Its goal is to maximize profit and to minimize loss. And as with all businesses, the criteria for a successful academic enterprise is now its effectiveness in attracting and retaining the student-customer. As far as I can tell, moreover, this transformation is the doing of administrators either through weakness or through policy. The weakness is in their succumbing to various departmental demands in offering dubious courses in dubious sequences; while administrative policy seems to foster the business of attracting and keeping students — in whatever academically shoddy fashion. Couple this with the policy of dismissing good teachers because of poor student evaluations, and retaining poor teachers who are tenured, and you have the ingredients for failed education. Schools have now become economic market-places. The political structure of a university has business people on the board of trustees, the president is a public relations man, and administrators are often business types. Since the above reflections are apparently politically indiscrete,[4] the discussion of educational reform in the Institute for Critical Thinking must restrict itself to discussion of teaching goals and methods. Having said this, I will address myself to the problem of goals and methods.

III. Consistency and Contradiction

The goal of liberal education, as I said, is the education of virtuous moral human beings, and the ideal would be the education of wise human beings. Wisdom connotes an understanding of many important things in a unified way, and knowing how to apply such understanding to the practical problems of life. To understand is to see patterns of relations. These relations may be temporal, spatial, causal, means-ends, logical, classificatory, and possibly something else. Moreover the discovery and contemplation of patterns is the source of aesthetic values. And it may very well be that the moral life is ultimately to be preferred for its aesthetic value.

An essential function of liberal education is to provide an understanding of important things. The understanding, then, that is sought is important general understanding. Peter Caws, with whom Weinstein worked, talks about the construction of a map of knowledge.[5] A similar idea is expressed by Wilfrid Sellars when he writes: "The aim of philosophy, abstractly formulated, is to understand how things in the broadest possible sense of the term hang together in the broadest possible sense of the term," and he goes on to use metaphors of maps and images.[6] Brand Blanshard describes the task of understanding using a metaphor of spanning bridges from a continent to outlying islands.[7] The metaphor is apt in stressing the "continent" of presupposed beliefs, and the fact that if a bridge is to be built the "island" must be, to use a current expression, commensurate with the continent.

The model of assimilating islands to a continent presupposes the adequacy of the continent, i.e. the stock of presuppositions or a Weltanschauung. Suppose the Weltanschauung contains false beliefs. Possibly what is needed is deconstruction in the manner of a Socratic examination. For this purpose a group discussion may very well be the answer.

If liberal education aims at important understanding, then it must be an education where all the subjects are in resonance, or in stable equilibrium with philosophy, or, as Matthew Lipman expresses it, philosophy stands at right angles to the other disciplines as the warp and woof in cloth. A philosophical perspective aims at seeing the big picture, and as such must work with broad categories, leaving particular concepts and details to the individual disciplines.

What then is Mark Weinstein's position? I am not sure. One thing that strikes me about his writing is his disparagement of normative philosophy. He seems to identify philosophy with a priori methods, and contrasts this with the empirical methods of the various disciplines. This would not be the view of philosophy that I would have. In my view, philosophy is interested in a coherent categorial framework, and the categories it works with are taken from all the disciplines so that a person within any discipline who reflects on the categories of his discipline becomes himself a philosopher. In this sense Einstein was a philosopher, as was Freud, as was Toynbee. Possibly Weinstein is trying to disparage only particular approaches to philosophy, like that of Kant, or positivism, or analytic philosophy, because he certainly expresses admiration for philosophers such as Toulmin, Habermas, Lipman, and Siegel, among others.

Anyway, the second problem concerns Weinstein's epistemology. Apparently he and Tom Bridges, a colleague of his in the philosophy department, accept what they call post-modernism. It is clear to me that they claim to reject epistemological foundations in some sense. But since they fail to distinguish rationalistic foundations from empirical foundations, I am not clear whether they reject only empirical foundations or both. I happen to accept both types of foundations.

The rationalist foundation, or the Archimedean point by which all claims and arguments in any field are to be judged is the a priori reflective truth that no claim can be true if it is internally inconsistent—

e.g. The claim "This cube is round" cannot be true. It is also an a priori truth that if two claims are inconsistent, at least one of them must be false—e.g. The two claims, "This cube is green all over at time t" and "This same cube is not green all over at time t" cannot both be true. Given these a priori truths which act as criteria in any inquiry, a critical thinker is one who is disposed to reject claims which are internally inconsistent, and to reject at least one of two inconsistent claims.

Weinstein writes: "No claim is so basic as to be immune from the possibility of challenge and the demand for warrant and backing. Even the most basic principles of logic and mathematics can be challenged when complex constructions are claimed relevant to new domains. A classic case is the application of Non-Euclidian Geometry to Relativity Physics. . . . Deviant logics play a similar role in describing the very small regions of space-time characteristic of Quantum Physics."[8] In response, the passage is a red herring. First, there are no alternative or deviant logics which are internally or externally inconsistent. The principle of non-contradiction is a basic principle which is immune to challenge. Second, the only way Euclidian or any other geometry could be challenged would be by a charge of inconsistency.

At another place we find Weinstein making the following claim: "A priori reasoning can only be challenged in terms of extra-logical criteria."[9] I don't know what he has in mind, but there is no challenging the a priori principle of non-contradiction.

For all I know Weinstein may agree with what I have said above but may go on to object that fidelity to consistency will not take you very far.[10] I would beg to differ. In the fundamental question of whether one should strive to be a citizen of this world or the heavenly cities of Christianity, Judaism, or Islam, I would propose that these theologies should be rejected in those aspects which urge faith in the truth of contradictions.[11] A critical thinker, in the words of Harvey Siegel, is indeed one who is appropriately moved by reasons; but I would add that he is one who above all else is appropriately moved by contradictions. I think it is at this point, if anywhere, that a multi-culturalist must object. He or she will object that my stand prevents me from entering into dialogue with people who are Christians, Muslims, Jews, Buddhists, Hindus, Kierkegaardians, Heideggerians, Derridians, and such. Not so. I am willing to enter into a dialogue in order to understand their *Weltanschauung*, and I may try to persuade them in the appropriate context of why a belief in a contradiction cannot be true, but I also know a priori that I will not learn the truth from them if they speak to me in contradictions. But practical wisdom may tell me to reserve my judgment and not write Satanic Verses.

Furthermore, I am a rationalist who believes that there are indispensable categories for the intelligibility of experience. Weinstein writes that "Kant was mistaken about the transcendental character of the categories, because he misconstrued the stability of the foundational concepts in mathematics and physical sciences."[12] The reasoning here is faulty. Granted that Kant made a mistake about the place of Euclidian geometry, it does not follow that transcendental arguments about categories in general are wrong or that they should be dismissed.

There are at least five such categories necessary for any objective experience: temporal relations, spatial relations, causal relations, means-ends relations, and conceptual (logical) relations. If the possibility of understanding a conceptual framework presupposes the instantiation of these categories, then there are no alternative categorial frameworks, though there are many alternative theories. The five categories I have listed are absolute in the sense of being trans-historical and trans-cultural. In addition, there are more parochial categories dealing with substances which include a world of discrete things, like stones, plants, animals, and other human beings. The justification for the universal presence of these categories would require an appeal to the theory of evolution. Anyway, Weinstein would no doubt object with counter-examples drawn from the realms of myth, religion, and scientific and pseudo-scientific theories. Even these do not escape from the broad categories. However, my parochial categories are restricted to the level of a common sense framework dealing with survival—for example, with the business of getting, transporting, and storing food, and with the business of clothing and shelter. Concerning these things there are no alternative categorial frameworks. Alternative frameworks arise with attempts to extend or explain the events experienced in this common framework.[13]

In addition to these a priori categories, I also believe that there are empirical foundations in the apprehension of pre-linguistic phenomenal facts, such as would be expressed linguistically by the sentence "There is an appearance of red." It is the rejection of something like this claim by Richard Rorty which constitutes the rejection of empirical foundationalism.[14] What would Weinstein say to all this? I think he must deny the existence of universal categories, but above all else he must insist that all observations are theory-laden. And his argument for this is to appeal to how the word "observe" is commonly used.[15] This approach begs the question against the position that would limit the use of the word "observe" in a philosophical discussion to the report of sensory phenomena.

IV. Critical Thinking

In any case, Weinstein's whole philosophy of education rests on his philosophy of science. He seems to be a disciple of Stephen Toulmin. Only when we understand Weinstein's philosophy of science can we appreciate his dissatisfaction with critical thinking courses, his general indictment of which is that their treatment of inductive arguments in science is inadequate. And the reason for this according to Weinstein is that observations are not only theory-laden, they are Weltanschauung-laden. According to Weinstein, there are no neutral, universal standpoints. He writes: "My analysis, so far, goes against the grain of a deeply embedded tendency in philosophy to search for general and topic-neutral analyses of central logical and epistemological concepts."[16]

Weinstein's own remedy is that critical thinking include the epistemology of the disciplines, a task, I would like to point out, which is already taken care of by the philosophy of the disciplines.[17] Similarly, a study of the "epistemology" of the fine arts such as literature, music, and painting is taken care of in the philosophy of art.[18] But my suspicion is that Weinstein wants to abandon the whole project of such philosophies as *normative* enterprises, and substitute what is called naturalized epistemology, which is nothing other than what was called the sociology of knowledge. The consequence of this has been the abandoning of logic for rhetoric. Instead of concern with a logic of the disciplines, the Institute is pushing towards a concern with the rhetorics and ideology of the disciplines.

I find Weinstein's philosophy of science unacceptable. And I would recommend to the Institute of Critical Thinking that before making Weinstein's philosophy of science the Archimedean foundations for a philosophy of education — as apparently has already been done — the Institute engage in some critical thinking about Weinstein's controversial Toulminian philosophy of science. One could begin by taking stock of the arguments presented by Frederick Suppe, in his "The Search for Philosophical Understanding of Scientific Theories,"[19] against Toulmin's and other such Weltanschauungen views. After all, a critical thinker is one who welcomes alternative, dissenting views, especially if they are well defended.[20]

Endnotes

[1] There are two excellent papers which address this issue both in *Critical Thinking: Language and Inquiry Across the Desciplines, 1988 Conference Proceedings*, ed. Mark Weinstein and Wendy Oxman-Michelli (Montclair State College, 1989): Donald Henson, "Critical Thinking and Contextualism:" pp. 303-310; Ludwig Schlecht, Jr., "Critical Thinking Courses: Their Value and Limitations:" pp. 279-289.

[2] "The relation of critical thinking to the complex of interlocking course requirements and professional accreditation must be taken into account if critical thinking reform is to be effective in college as a whole." Mark Weinstein, "Critical Thinking Across the Disciplines," *Inquiry* 2, 1 (Sept., 1988), p. 6.

[3] "Reflection on education, therefore, should be the primary focus of critical thinking in the schools. What is required is that the concepts and social structures underlying schooling be made available to the students for critical inquiry. For young students this need not require that sophisticated educational theories be presented." Mark Weinstein, "Reason and Critical Thinking," *Informal Logic*, X.1, (Winter, 1988), p. 16.

[4] Walter Veit put it well when he wrote, "The more embittered among us could probably point out that even some academics have been sacrificed when their analysis has proven to be too uncomfortable to boards of trustees or university regents." *Inquiry*, 3, 1 (Feb. 1989), p. 7.

[5] Mark Weinstein worked with Caws on this Map of Knowledge and wrote a paper on it, "Philosophy and the General Curriculum: the Map of Knowledge," *Metaphilosophy*, July-October, 1985.

[6] Wilfrid Sellars, "Philosophy and the Scientific Image of Man" in *Science, Perception and Reality* (NY: The Humanities Press, 1963), p.1.

[7] Brand Blanshard, *The Nature of Thought*, 2 vols. (NY: Humanities Press, 1939).
I would like to bring your attention to the following passage:

> For many years, almost since 1939, I have recommended that students planning to become teachers read the seven chapters in Book Three of *The Nature of Thought* in which Mr. Blanshard gives an account of "how we think" when we are getting to know something or coming to understand something. These seven chapters (18-25, omitting 22) contain an excellent, relatively straigtforward account of these matters. I do not know of a better one.

Alburey Castell, "Blanshard on Understanding," in *The Philosophy of Brand Blanshard*, ed. Paul Schilpp (Open Court, 1980), p. 528.

[8] Wendy Oxman-Michelli and Mark Weinstein, "Critical Thinking and the Work of Stephen Toulmin," *Inquiry* 2, 4 (Dec. 1988), p. 14.

[9] Mark Weinstein, "Reason and Refutation: A Review of Two Recent Books by Harvey Siegel," unpublished, p. 25.

[10] "The characteristically philosophical arguments presented so far, all strive to illuminate issues of internal incoherence. And they have a characteristic logical form: highly abstract, universal within their domain, and logically certain. But such arguments take us only so far. In order to extend the discussion in ways central to epistemology and critical thinking, additional apparatus will be required." Mark Weinstein, "Reason and Refutation: A Review of Two Recent Books by Harvey Siegel," unpublished, p. 16.

[11] I recommend Brand Blanshard's book *Reason and Belief* (London: George Allen & Unwin, 1974) on this topic.

[12] Mark Weinstein, "Reason and Critical Thinking," p. 7.

[13] Two notable attempts to describe the common sense framework are those of Peter Strawson's "descriptive" metaphysics, and Wilfrid Sellars' "manifest image." See P. Strawson, *Individuals: An Essay in Descriptive Metaphysics* (London: Methuen & Co. Ltd., 1959; NY: Anchor, 1963). W. Sellars, "Philosophy and the Scientific Image of Man."

[14] Richard Rorty, *Philosophy and the Mirror of Nature* (NJ: Princeton University Press, 1979), esp. ch. 4.

[15] Mark Weinstein, "Towards an Account of Argumentation in Science," *Argumentation* 4 (1990), p. 283.

[16] Weinstein, "Argumentation in Science," p. 284.

[17] I recommend Ernest Nagel's *The Structure of Science*, 2nd ed. (Indianapolis: Hackett, 1979).

[18] The classic work in this area of philosophy is Monroe Beardsley, *Aesthetics: Problems in the Philosophy of Criticism*, 2nd ed. (Indianapolis: Hackett, 1981).

[19] In *The Structure of Scientific Theories*, ed. Frederick Suppe (University of Illinois Press, 1974). For a criticism of Toulmin's logic, see Hector-Neri Castaneda, "On a Proposed Revolution in Logic," *Philosophy of Science* 27 (1960): 279-292.

[20] I would like to express my respect to Mark Weinstein and the paper selection committee for accepting a critical article on the Institute's work, and also I want to thank Mark for sending me his many articles and other material. I also wish to thank my friends Prof. Ronald Terranella and Prof. Masood Otarod for their comments on drafts of the paper.

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TWO VIEWS OF DEMOCRACY: IMPLICATIONS FOR EDUCATION

George Bernstein

Elitist Democracy

One of the outstanding social and political features of the twentieth century is the overwhelming shift toward advocating democracy. Some of the recent events in parts of Eastern Europe simply provide rather dramatic testimony to that development. But there have been, in fact, a number of different philosophical positions in arguments favoring democracy. One of them one might (very broadly) label the "elitist democracy" (not necessarily an oxymoron); another, "participatory democracy;"[1] in general, the first suggests that active participation in the policy by a large number of citizens is probably harmful, and that much of what needs to be done should be left to experts and political bureaucrats. The second view is that citizens in various capacities should, indeed, play active roles in a number of different community situations. Among the first group are Theodore Lowi, Robert Crain and Joseph Schumpter and Herbert McClosky and sometimes Harold Lasswell. The last one argues the following: "Government is always government by the few, whether in the name of the few, the one or the many.

But this fact does not settle the question of the degree of democracy since a society may be democratic and express itself through a small leadership... The key question turns on accountability."[2] A frequent corollary of this elitist-democratic view which assumes that leadership must be small is the contention by Herbert McCloskey that, as he sees it, the majority of American citizens are not supportive of basic civil liberties and therefore the preservation of our democracy depended on making sure that citizen involvement in politics be kept to a minimum.[3]

Theodore J. Lowi belongs very much to the same ideological school as McClosky but approaches matters somewhat differently. For Lowi, involvement of the public in major public issues, especially in actually bargaining over policies is destructive. This open-ended debating and attempt to — and these are *my* words — represent large group interests — contribute to corruption and such a process does not lead to making rational policies and decisions.[4] There should be centralized rationality. Among a number of "elitist democrats" there seem to be strong echoes of Plato and his *Republic* reverberating. One of Plato's arguments was that the leaders of the new society *could* be that precisely because they were *not* enmeshed in the more personal view of, say, the sandalmaker who would think in terms of sandalmakers' needs in relationship to society or, more of our time, guards in a prison pressing their claims before a governor's office. Their experiences were real but necessarily parochial. Leaders were supposed to be immune from such interests.

In this line of thinking, elite governing groups are somehow free of interests, able to work for and speak for a more general good of the community. It is a short line from Plato's *Republic* to the technocrats of the nineteen twenties and the elitist democrats of later generations. What they have in common is the view that greater rationality — and therefore greater ability to run governments and organizations — rests at the top and that most people are not as well endowed with the ability or capacity to run major projects. Others — the large majority — are more inclined to be (1) corrupted (2) the creators of technological or social chaos (3) participants in and even advocates of inefficiency and sloppiness (4) unable to grasp the "large picture" (5) less interested in using merit as the basis of a "move upward."[5] A rational administration is one when "democratic" is characterized by following "legal norms, factual accuracy in its approach, and non-partisanship."[6] Frederick Mosher lends his own brand of idealization to the matter: "Professionalism rests upon specialized knowledge, science, and rationality. There are *correct* ways of doing things. Politics is seen as constituting negotiations, elections, votes, compromise — all carried on by subject-matter amateurs. Politics is to the professions as ambiguity to truth, expedience to rightness, heresy to true belief."[7]

Participatory Democracy

It is possible to argue that there should be an intimate connection between democracy and education, and that the two should be inextricably intertwined. That position is at one end of the philosophical spectrum and the American John Dewey is a major representative of that position. At the other end, there are views that hold that democracy has nothing to do with education, and vice-versa. There might be a position arguing that the two, realistically speaking, cannot be bonded together. Somewhat different is the view that they should not be together, that whatever is involved in education has nothing to do with democracy, except perhaps to the degree that a traditional teacher would present democracy as one of many topics. Between these two poles are many other views which see at least the possibility of some loose alliance between the two, but without a strong conviction that the two should be rooted in a common life philosophy. So, the position of natural affinity and dependence, that of real antipathy or necessary distance, and others floating in between have all been part of the historical development.

It is perhaps in ancient Greece that one might find the first inkling of either an affinity between democracy and education or the possibility of intellectual, moral or political kinship between the two. But there as elsewhere, the reality of education as it was offered and the philosophies which were espoused were within the context of the culture. So, a useful assumption for considering the degree of relatedness between democracy and education is that there are aspects of culture, politics and economy which have a major impact on the relations between democracy and education. First, broadly speaking, one might argue that democracy — even if we limit ourselves to political democracy as it is ordinarily thought of — has been a rarity in the world. Certainly effective democracy, rather than democracy on paper — has been a rare bird and, relatively speaking, continues to be.[8]

So, one of the significant contexts that must be taken into account is that political democracy that works fairly well has not been present in the world very much. The enthusiasm with which politicians and the media greet and celebrate events in the world is definitely not the most rational guideline for determining whether or not a society is democratic or even whether or not it is willy-nilly moving in such a direction.

It has been argued that democracy (at least from the Eurocentric perspective) was introduced into the Western world in Athens in the second half of the fifth century ECE.[1] This first political democracy was unusual (perhaps unique) not only in its time but ever since. Athenian democracy was direct, that is, for the most part there were not elected representatives, but the citizens themselves in regular assembly meetings discussed the issues and voted on them. In many respects, this model has been attractive to many groups since the end of the fifth century BCE, even when there was little information about Athenian society and even when groups did not perceive Athens as their reference point. So, for example, there have been many religious groups which have argued with varying degrees of intensity that there should not be a hierarchical arrangement which would compel making decisions primarily determined by those at the top of the social pyramid. The sense was that there should be a council of some kind in which all would have equal weight and through which the major decisions concerning the life of the community would be made. This was done in some other ancient Greek communities, in various religious groups (Christian and otherwise) through the centuries. The traditional appeal to the sense of the Meeting among many Quakers was but one of many examples.

However, most of those that were organized with some kind of "consensus" in mind probably did not have *political* democracy in mind, but there was the notion of "citizenship" in the community. One might also cite the Israeli kibbutz, at least for its first two or two and a half generations of its existence. One strong notion of democracy, then, emphasizes the active participation of citizens facing one another, debating one another in public forum, but also having the power to making decisions regarding their life. To some extent consistent with this in the world of education is the philosophy which argues that there should be little or no hierarchical structure, that we should be more or less equal in our search for reality and for the life decisions that are sensible, that the school should be an open-ended part of life, that we are all capable of developing our powers of rational thinking, that we are capable of doing that together. Paulo Freire, the Brazilian educator, is but one exemplar of that approach.

If, for the moment, we consider the development of democratic practice as moving in one of two directions (although in fact there have been many mixtures), we can see in Freire's thought and action at least some aspects of the "Athenian model." Among those features are the following:

(1) A general antipathy toward hierarchical structures, including his concept of how education should be "arranged." He sees hierarchy as a structure which protects, defends and allows the expansion of the established order. Such systems will exploit most people. If we were to suggest an antipode to "hierarchy" or "institutionalized structure" it might be "community," or perhaps more precisely the "development of community." This implies a faith in large numbers of people who for many reasons have been powerless but who are capable of learning how to gain power over their own lives through the development of a community in which group learning plays a central role.[9]

(2) The concept of community extends to those "being taught." Perhaps in part because those using Freire's method have worked within "Third World" communities, or within groups that have not been permitted to enter through the principal gateways of "traditional" opportunity. Very often those in the "classroom" have been similar in many of their life experiences (such as Peruvian highland villagers, inhabitants of Brazilian *favelas*, etc.). They are already in their community of one kind. But very often it has been common interests as the basis for survival rather than common interests perceived as the ground for empowerment.[10]

(3) Education is not perceived as the acquisition of technical skills of some kind so that individuals can move forward in a basically entrepreneurial economy. Rather it is the means through which a group becomes more conscious of the social reality of the world, and learns that the tools of education are necessary to begin to undertake a transformation of the world. C. B. MacPherson in a discussion of "liberal democracy" distinguishes between "two maximizing claims: the claim to maximize individual utilities, and the claim to maximize individual powers. The first was strong in the British Utilitarian tradition. It argued that it not only maximizes satisfactions, but that it does so equitably.[11] In this approach, one assumption is that humans are essentially or at least primarily consumers (of utilities). The good society provides the satisfactions. The second claim, as MacPherson presents it, is that the "liberal democratic society" maximizes people's human powers, that is, their potential for using and developing their uniquely human capacities. This certainly has a Western Renaissance ring to it at least to the extent that one concerns oneself with maximizing one's human powers. In this approach, the human being is not primarily a "consumer of utilities" but a creator, one who acts, one who is able to enjoy his or her attributes. Human development (of the right kind) may be seen as an end in itself. As MacPherson says, in this case, humans are not bundles of appetites seeking satisfaction but bundles of conscious energies seeking to be exerted.

Paulo Freire is very much in the tradition of those who see human beings as needing to develop the powers that lie latent within them, although his terminology and frames of reference are, it seems to me, quite far from the political philosophical language employed by MacPherson. The desire to have conscious energies used can be placed in more than one context. For Freire as "philosopher" the emphasis must be on what a community of human beings might accomplish together if they commit themselves to rescuing themselves from a condition of exploitation. Liberation is a condition of being neither exploited nor exploiting. Often implied and sometimes stated in Freire is a view that assumes a situation of human justice that will prevail once the consciousness of exploited people develops to the degree that they are capable of struggling to significantly alter their conditions. So, we find in Freire a strong nexus of words that are keys to our beginning to piece together what he is arguing for. Several of them have been mentioned: liberation, consciousness, exploitation and community. If we refer back to the Athenian model there was attention given to two of the four. There was clearly a devotion to a community in which all citizens could be active rather than passive, and types of political education, most of it informal, through which people were shaped to see the *polis*, but in particular a democratic *polis* as a reality to be cherished and protested, and at the same time, a model for what political and community life should be.

But Freire must be placed in the context of our times. Slavery is no longer viewed as desirable or as a good, something quite different from the views of the ancient world, including the opinions of Athenians.[12]

Dilemmas in Education and Democracy

In this entire question of the types of democracy and democratic thinking, and how they might relate to education, one need not and should not limit oneself to the situation in the United States. If one begins with the experience of ancient Greece, one might assume life in another time and place is of possible relevance. But even within the parameters — loose though they may be — of this paper, one can turn to a few other societies. It is of value to turn to what had been the Soviet Union because one can ask how the ideas of democracy might be considered useful and necessary in times of crisis and how democratic practices can be threatened. There is clearly a crisis; in fact, there is a cluster of crises which impinge upon the world of education. If we consider the last five years of Soviet life as a time of crisis, we might also turn to other periods of Soviet history to see what was suggested and perhaps even done that showed some relationship between theory and practice. I am also considering aspects of Soviet life because it may also provide one of many possible bases for making comparisons between the United States and other societies. Such comparisons are both enlightening and rather often, useful.

One might view experiences in the Soviet Union since 1917 as attempts to move education in one of three directions. The first, perhaps influenced in part by the early attempt to establish Soviets, could probably be designated as an effort to move in the direction of "participatory democracy." Some of the early (1918-1928) schools tried to have teachers and students co-operatively determine at least part of the curriculum and the direction the school(s) should take. Here one had open meetings and discussions, and an effort to establish and live with a consensus. The embryonic stages of this development were marked by enthusiasm for what appeared to be a new path in education, the assumption that open dialogue was both a means and an end, and the conviction that education was one of the means through which to radically transform Russian and other societies.[13]

At the other end of the education spectrum was the return by the early 'thirties to a severely traditional, vocation-oriented and ideology-laden institutional structuring demanded by Stalin, partly as a means of rapidly industrializing the society. There would be large and widespread cadres which, to borrow a term from a history of American education, would serve as "Managers of Virtue." Open discussion, dialogue, co-operation among teachers, parents and students became anathema and criminal. The system as a whole became even more repressive. This approach to education was anti-democratic. There were, however, before the implementation of Stalinist principles, several other approaches which one might, within the context of this paper, be labeled as "elitist democratic." Short of attempting to impose Stalinist principles of control, there was an attempt by many educators to liberate themselves from the stranglehold of traditional Czarist decrees, and at the same time to avoid succumbing to the intrusions of an increasingly totalitarian state.

In some respects, the period 1920-1928 has complicated analogies in the Soviet experience of the last few years. People in general having rejected earlier modes of thinking and behavior but at the same time enthusiasm sharing space with fear, the fear of a vast unknown which, given the context of Russian history, could quickly transform itself into the most tangible kinds of chaos. In education, therefore, a bursting forth of many genuinely innovative educational experiments and a conflict with the tendency to keep what was known. In some kind of middle ground, there was a movement toward "intellectual democracy" in the sense that many different views were debated within schools both inside and outside the classroom but co-existing with a rather traditional social relationship between teacher and student. The exploration of ideas was, for a period of time, rather open-ended while social relations became increasingly stratified and bureaucratized within the school system as an institutional structure.[14]

In the Soviet Union, there were four types of educational structures, sometimes two or three of them overlapping: (1) traditional czarism - bureaucratic, Russian Orthodox, elitist, providing an elementary education for a fairly large number of the poor, anti-democratic in every sense (2) early revolutionary,wildly enthusiastic, with the enthusiasm matched by an equally exuberant catholicity in the search for educational innovations that might be molded to Soviet needs, an expansive reformist literature, and at the same time, suffering from anxiety that the Bolshevik state would impose political-bureaucratic guidelines which would demolish the "participatory democracy" (3) reformist-institutional still operating with the democratic assumption that free inquiry is desirable, but increasingly subject to the pressures of a strong central state. Possessing some elements of "elitist democracy" but moving away from support for "participatory democracy," but supporting some features of "elitist democracy" such as the verbal support of free inquiry and (4) totalitarian bureaucracy - by the middle 'thirties, there is a full-fledged school bureaucracy, an ideologically-trained staff in office and classroom, a severely hierarchical school and governmental system, antagonistic to both "elitist" and "participatory" democracy to the extent that advocates or practitioners of either will be treated as criminals. By and large, it seems that over the last few years, there has been a shift toward "elitist democracy" with many more occasional attempts to move toward "participatory democracy," both in the larger political arena and in schools.

The United States has had a very different kind of history. Modest efforts in some circles to move in the direction of "participatory democracy" in education have never been the result of some crucial upheaval in society, such as the American Revolution, the Civil War, the Great Depression, or World War II. Perhaps an exception to this "historical rule" was the mushrooming of "alternative" schools in the 'sixties and 'seventies, most of which did not survive. "Participatory democratic" schools seemed, rather, to be characterized by a desire to escape the mainstream of American life and to provide on a very small scale, a network (quite involuntary for the most part) of alternatives to large, bureaucrat-heavy systems which seemed to do little to open new doors of opportunity to the young. In a number of cases, such schools were organized by parents despairing of existing school systems. In others, the alternatives were created within the larger system that existed. Such, for example, was Deborah Meier's Central Park East complex in New York City. In the case of the first type, parents both organized and administered the school. In the second, with strong, ongoing parental support inside and outside the school, an educational reformer of energy and persistence could organize a relatively large scale model alternative. Central Park East has some characteristics of both "participatory" and "elitist democracy."

American Dilemmas

If we continue to use basically the dichotomy between "elitist" and "participatory democracy" as one framework for analyzing the situation in education, it is probably possible to assert that in American society one of the dilemmas we face is precisely how it might be possible to move in the direction of "participatory democracy" while recognizing the larger reality here is "elitist democracy," if one wishes to concede that it is a form of democracy. If we consider developments over the last twelve years or so (that is, the Reagan and Bush years) it is possible to suggest that there is considerable pressure to diminish the possibility of "participatory democracy" occurring within schools, and at the same time attempting to tighten the right of control by a higher political bureaucracy but without actually demonstrating much interest in the democratic framework. We are in an increasingly complicated situation in which the central government wishes to increase pressure but without providing additional funds which might make it somewhat more likely that the local governments (which we *might* consider sometimes examples of "elitist democracy") be able to move forward on major educational reform projects. The reformist projects have very often come either from the work of professional educational organizations that are not within the formal educational hierarchy, such as the Carnegie Corporation for Learning, the MacArthur Foundation, the Danforth Foundation, and the Ford Foundation or through educators who without the formal support of the highest bureaucratic levels can organize some innovative projects. On occasions there may be elements of "participatory democracy" within such reformist projects, at least to the degree that teachers might be in a position to share in the establishment of the curriculum. But by and large—at least until now--there have been few efforts within the usual public or private school systems to use either consciously or unconsciously elements of "participatory democracy" as a model for organizing innovative projects.

If one assumes it makes sense to educate for "democracy" it is legitimate to ask, at the very least, what kind of democracy one is talking about. In the history of the United States and American education, "democracy" in the schools has been linked to (l) distinguishing between monarchy and the new republic (2) the assertions of nationalism (3) anti-slavery positions (4) the Westward expansion (5) welcoming large numbers of immigrants (though particularly those from Europe) and more recently (6) the advocacy of multicultural education. (This by no means exhausts our historical experiences). That is, in each association, there was - or *is* - a notion of democracy which included what it was ideologically allied to. When today in the United States there are advocates of democracy in education, they are not necessarily in agreement about either the nature of democracy or education. One of the principal differences continues to be between "elitist" and "participatory" democracy although there are numerous positions somewhere between the two. There were 18 members on the National Commission on Excellence in Education. One was a public school teacher. All the others were upper-level administrators on all educational levels (except elementary school), one Harvard University physicist and one Chairman of Bell Laboratories. If we assume that the social composition of a group can reveal major aspects of its ideology, this was one with an "elitist" membership. To suggest that "teacher input" could have been greater is begging the question. The term itself suggests there is necessary leadership on a higher level and that they will permit those on a much lower level to play a subordinate role. It is a repetition in

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theory and practice of notions of "elitism" which has antecedents in ancient Greece.

America's educational history has always been terribly complicated, and the issues relating to democracy and education continue to plague our society both in theory and in practice. It is complex in part because of the fairly unusual position of the State which fairly often disclaims possessing considerable power and at the same time wishes to exert a good deal of the control that it does have in the world of education and elsewhere.[15] Considerable monies have been taken away from education systems in recent years is but one important example of the complicated game the state continues to play. But our society comes out of one or more democratic traditions which still affect both thinking and practice. The dichotomies between what some have called "participatory democracy" and "elitist democracy" are but demonstrations of the difficulties in finding resolutions in basic American problems. The contradictions understandably manifest themselves in educational systems as elsewhere. What *do* American educators mean when they say they wish to have democracy in education?[16]

Endnotes

[1] The term "elitist democracy" is suggested by a historian of ancient Greece and Rome, M.I. Finley, in *Democracy Ancient and Modern* (New Brunswick: Rutgers University Press, revised ed. 1985, orig. ed. 1972).

[2] Harold Lasswell, Daniel Lerner and C. Easton Rothwell, *The Comparative Study of Elites*. (Stanford: Stanford University Press, 1952), P.T. One can add to the list such names as S.M. Lipset, W.H. Morris Jones, Henry Kissinger, Julien Freund. See the commentary by Pierre Vidal-Nacquet, "Tradition de la démocratie grecque" the introduction to Finley, *Démocratie antique et démocratie moderne* (Paris: Petite Bibliothèque Payot, m.d.) pp. 7-44.

[3] Herbert McCloskey, "Consensus and Ideology in American Politics," *American Political Science Review* Vol. 58, No. 2 (June, 1964), pp. 361-382.

[4] Theodore J. Lowi, *The End of Liberalism* (New York: W.W. Norton, 1969), p. 101.

[5] Peter Bachrach writes:"...Plato's guardians, Veblen's technocrats, and Mannheim's intellectuals - to name a few elite types - were all conceived as possessing the ability to transcend selfish interest in ruling for the well-being of the community. Indeed, the modern defense of elitism...is based primarily on the contention that the best interest of a

free people, of civilization itself, depends upon the ability of the gifted to command the deference of the many for the well-being of all. ...All elite theories are founded on two basic assumptions: first, that the masses are inherently incompetent, and second, that they are, at best, pliable, inert stuff, or at worst, aroused, unruly creatures possessing an insatiable proclivity to undermine both culture and liberty." *The Theory of Democratic Elitism: A Critique* (Lanham MD: University Press of America, 1980), p. 2.

[6] Wolfgang Mantl, *Repräsentation und Identität. Demokratie in Konflikt. Ein Beitrag zur Modernen Staatsformenlehre.* (Wien: Springer Verlag, 1975), p. 283-284.

[7] Frederick Mosher. *Democracy and the Public Service* (New York: Oxford University Press, 1968), pp. 101, 108.

[8] Giovanni Sartori, *The Theory of Democracy Revisited. Part I. The Contemporary Debate* (Chatham: Chatham House Publishers, 1987).

[9] See, for example, Budd Hall et. al. *Creating Knowledge: A Monopoly? Participatory Research in Development* (New Delhi: Society for Participatory Research in Asia, 1982). See David J. Mathien, "Community Education as Radical Pedagogy," *Community Education Journal*, Vol. 17, No. 4 (Summer, 1990), pp. 26-28; Michael Holzman, "Post-Freirian Model for Adult Literacy Education," *College English*, Vol. 50, No. 2 (February, 1988), pp. 177-189.

[10] See, for example, Dennis Sayers, *Bilingual Vocational Training with Trainers and Trainees. Concepts and Applications* (Hartford: Connecticut State Department of Education, 1980), Sybil Barbara Faigin, *Basic ESL Literacy from a Freirian Perspective:A Curriculum Unit for Farmworker Education* (MA. University of British Columbia, 1985), Nancy Squires and Robin Inlander, "A Freirian - inspired Curriculum for At-Risk High-School Students," *English Journal* (Vol. 79, No. 2 (Feb, 1990), pp. 49-56.

[11] C.P. MacPherson, *Democratic Theory: Essays in Retrieval* (Oxford: Clarendon Press, 1973), pp. 4-5 ff.

[12] One outstanding example from the ancient world is the Politics of Aristotle. See *The Basic Works of Aristotle*, ed. Richard McKeon (New York: Random House, 1941), pp. 1132-1133 ff.

[13] Oskar Anweiler, *Geschichte der Schule und Pädagogik in Russland vom Ende des Zarenreiches bis zum Beginn der Stalin - Ära* (Berlin: Quelle and Meyer, 1964), pp . 110-132 .

[14] Oskar Anweiler, *Geschichte der Schule und Pädagogik in Russland vom Ende des Zarenreiches bis zum Beginn der Stalin - Ära* (Berlin: Quelle and Meyer, 1964), pp. 275-294.

[15] One of the more interesting examples of the difficulty of coming to resolution in this matter is Benjamin Barber, *Strong Democracy. Participatory Politics for a New Age* (Berkeley: The University of California Press, 1984).

[16] For one philosopher's approach see Michael Walzer, *Radical Principles. Reflections of an Unreconstructed Democrat* (New York: Basic Books, 1980), pp. 257272. We continue, in fact, to struggle with the biases that have been present in American education and society for generations. Henry Herbert Goddard, argued in 1920 that "whenever the four million (his top ten percent of the population in intelligence) choose to devote their superior intelligence to understanding the lower mental levels and to the problem of the comfort and happiness of the other ninety-six million, they will be elected the rulers of the realm and then will come perfect government —Aristocracy in Democracy." *Human Efficiency and Levels of Intelligence* (Princeton: Princeton University Press, 1920). The attempt to shape the schools with the principles of the elitist meritocracy is as old as ancient Greece. It continues to play an important role in practice, though somewhat less in theory precisely because to advocate democracy is perceived as a political advantage.

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MATTERS OF ITERACY, MATTERS OF LITERACY

Bernard A. Josefsberg

> But for the species as a whole, the boundaries of reality are in fact moveable.
>
> —Jurgen Habermas, *Knowledge and Human Interests*

I recently uncovered an artifact from my personal educational archaeology: a packet of note cards from my last year of high school English containing my independent research report on "Camus, Existentialism, and *The Plague*." The packet is thick — 86 large cards, representing five sources, most prominently Germaine Bree's *Camus*. Its discovery in the house in which I grew up triggered a vague memory of my appearance before the class to dispatch the "oral presentation" requirement of the project. In contrast to the cards themselves, the memory of that event is a slim one — nothing more than of standing alone and talking. Whether anyone was listening or was moved to respond, I can't recall. Nonetheless, in listening to these cards 25 years later, I find they have much to say about my adolescent cast of mind and the formative educative influences then at work upon me.

For one, the cards reveal a diligent student eager to offer the teacher an abundance of words suited to the academic occasion, high school honors English variant. The packet's density bespeaks my awareness that an independent "report" on Existentialism — an ism of obvious weight, probably twice as heavy as the Transcendentalism studied the previous year — represents a Promethean opportunity to wear scholarly long pants. That I coveted such clothing is obvious: the notes are copious, full of biographical and literary minutia and sodden with long quotations about the weighty ism in question. They are also impeccably systematized so as to provide all the required bibliographical obeisances.

Interestingly, barely any of the language on the cards is mine. In keeping with my sense of academic manners, I had transcribed other, authoritative, voices so as to relay them to my audience. By that means, I would be able to demonstrate my "grasp of the subject" and establish my own candidacy as an academic worthy. Thus, I was apparently able to report that, according to Henri Peyre,

> Man wants rationality, and he is faced everywhere by the irrational. He is impelled by the will to control and steer his fate, but he is chained by blind and evil forces.

I could relate *The Plague*'s central theme, because Philip Thody told me that, "The rebel must realize in his movement toward human solidarity that he shares common suffering with all men." And I could really zing them with page 233 of *An Age of Fiction*:

> The time has passed for seeking the hidden meaning of these events, for justifying the terror and the violence in the name of abstract ideologies or subjective illuminations ... It is time to assume the humbler role that history has assigned us. It is time to pause, to reflect, to evaluate and to remember. Thus, in the midst of the official celebrations marking the end of *La Peste*, Camus' narrator decided to write his chronicle — "in order to give evidence in favor of the stricken, to leave some reminder of the violence done them, and simply to say what one learns in the midst of a disaster: that there is more to admire than to despise in men."

I was a good student, and my work on this project most assuredly preserved and probably enhanced my status. I postured myself to mouth weighty voices about weighty matters. However, like the ventriloquist's dummy, mind — in the Deweyan sense of "the power to understand [these matters] in terms of the use made of them" (*Democracy and Education*, p. 39) — never at all entered the equation.

In *One Writer's Beginnings*, Eudora Welty writes, "Through travel I first became aware of the outside world; it was through travel that I found my own introspective way into becoming a part of it." She continues:

> ... the outside world is the vital component of my inner life. My work, in the terms in which I see it, is as dearly matched to the world as its secret sharer. My imagination takes its strength and guides its direction from what I see and hear and learn and feel and remember of my living world. But I was to learn slowly that both these worlds, outer and inner, were different from what they seemed to me in the beginning (p.83).

Until I connected to that which my adolescent studenthood disjoined from my understanding, I nurtured fantastical (and fundamentally mindless) projections of my adult identity within a projectively "known" world. Like Welty, I was to learn, "slowly", that both identities — of self and world — would be "different from what they seemed to me in the beginning."

In reading Camus and his critical surround, for example, I was not reading — in any Freirean sense — the world. By appropriating authoritative voices, I intended, merely, to inch forward toward my aspired place in a static realm of fixed meanings, established roles, and painless transactions. In other words, I aspired for all that was not my adolescence, and in conspiracy with the academic ideology of the moment, I construed a liberal education as nothing less than a Cannery of Extant Truth containing all that I did not then possess. Once acquired, that truth would set me free and disencumber me from the underconsidered, repressed, and underappreciated "heavy bear who goes with me."

For all my well rewarded Existential reportage, I still anticipated a life beyond high school unaffected by the possible meanings embedded in my reading. My parody of reading, my mimicry of learning, probably yielded a measure of technical proficiency in academic stylistics. However, as to the power of language to engird the spheres of action and intersubjectivity with meaning, I remained both illiterate and thoughtless. I "thought" as I had been taught to believe: that the form and content of those spheres were immutably fixed; that they were arranged along a hierarchy of value conspicuously analogous to the school's academic and cultural divisions; and that one entered esteemed spheres — and avoided more degraded ones — through personal displays of technical proficiencies. Such displays not only provided proof of learning; concurrently, they assured the guardians of those spheres of the initiate's capacity to respond appropriately to given imperatives and to thereby function gracefully in relation to those imperatives. That was adulthood, an autonomous condition denoting control over given exigencies by virtue of a "respondability" securing the adult's master status as a social being.

Dewey's observation that, "Mass production is not confined to the factory" (*The Public and its Problems*, p. 116), might well account for the peculiar tenor of the above described adolescent cast of mind. When viewed as the end product of a formal learning process, the form and content of such a mind reiterate the sanctioned iterations of prevailing social arrangements. Its peculiarities — in this instance, the emphasis upon technical mastery as a means for achieving an homeostatic autonomy — register the eccentricities of both the school as social institution and of the individual's more personal endowments of family and family history.

As seen through a Deweyan lens, such a mind so imprinted is as noteworthy for what it excludes as for what it contains. As a mindscape, it is barren of those conditions necessary for conjoint inquiry and activity and thus for the communicative sharing essential to "the clear consciousness of a communal life." (*The Public and its Problems*, p. 149) Bereft of those conditions, that mind is prey to the collective illiteracy of a society which no longer knows itself as a "public" and which therefore cannot create public meanings to interpret its collective experiences. As Dewey observes:

> ... An inchoate public is capable of organization only when indirect consequences are perceived, and when it is possible to project agencies which order their occurrence. At present, many consequences are felt rather than perceived; they are suffered, but they cannot be said to be known, for they are not, by those who experience them, referred to their origins. It goes,

> then, without saying that agencies are not established which canalize the streams of social action and thereby regulate them. Hence the publics are amorphous and unarticulated (*The Public and its Problems*, p. 131).

Such a "knowledge-less" mind, however much it exemplifies institutionalized standards of propriety and/or excellence, fails to enact its potential for public literacy inhering within common enterprise, especially the enterprise of learning. Dewey continues:

> To learn to be human is to develop through the give-and-take of communication an effective sense of being an individually distinctive member of a community; one who understands and appreciates its beliefs, desires and methods, and who contributes to a further conversion of organic powers into human resources and values...

Only through such "give and take", Dewey argues, can we transcend the "old Adam, the unregenerate element in human nature." The resulting development of our humanity represents the "only possible solution" for eliminating ubiquitous forms of social exploitation and subjugation. To free ourselves of our own arrangements, we must

> [perfect] ... the means and ways of communication of meanings so that genuinely shared interest in the consequences of interdependent activities may inform desire and effort and thereby direct action (*The Public and its Problems*, pp 154 -155).

In contrast to the mind-less pursuit of self-interest, and the individual and social suffering attendant to such pursuit, Dewey proposes mind-ful creation and re-creation through coactivities which secure the developing individual to a social and public context, itself developing into a communally moral sphere of positive freedom.

Similarly, Hannah Arendt would recognize the privatized nature of a young mind organized to obtain a deluded autonomy through proficient displays of respondability. For her, the formation of such a mind within the social crucible of the school predictably results from the fact that "society has conquered the public realm." (*The Human Condition*, p. 40) Lost with the disappearance of the public is the "agonal spirit" characteristic of the Greek polis whereby individuals engaged each other and enacted an excellence of being within a forum made public by a distributed will to excellence among free beings. Instead of the urge to break through boundaries entailed in such free activity, a public-less society emphasizes boundary setting and a corresponding hegemony of limits:

> It is decisive that society, on all its levels, excludes the possibility of action ... Instead, society expects from each of its members a certain kind of behavior, imposing innumerable and various rules, all of which tend to "normalize" its members, to make them behave, to exclude spontaneous action or outstanding achievement (p. 40).

The exercise of technique within circumscribed ambits supplants demonstrations of uniquely human excellences by virtue of which the ambit of liberated humanity is enlarged. Thus, a contemporary university advertises itself in the following terms:

> The *promise* of Adelphi is the promise of a liberal education, one that reflects not only the spirit of this age, but of every age. It helps get you into law school or medical school or an investment banking house or an MBA program or a job in a great training program or an entry level slot ... producing print ads on Madison Avenue. A true liberal education succeeds at that famously because all those fine measures of success are *consequences* of your studies not mind-dulling, all consuming objectives (*New York Times* advertisement, 5/5/89).

Within such a society, the self-formative arts of liberation become commodified and sold in socially available terms actually denoting their opposites. In this way, the content of "liberation" itself becomes socialized, that is to say, distorted and deformed in the interests of institutionally prevalent distortions and deformations.

As understood by Dewey and Arendt, and as explicated most directly by Jurgen Habermas, the ecology of human experience — i.e., the quality of the transactional relationship between "self" and "other" — indexes the normative, rational, and ethical content of "thoughtfulness" as it is mediated in speech and action. In luring prospective students, the university baits its line with fantasies of liberation drawn from the stock of universal human need and culturally specific meaning. The line will hook the fish, and the university fill its classrooms, to the degree that liberatory needs have already been canalized in the direction of high status vocations. However, if unsatisfied liberatory needs could encounter more universal, less restricted, and thus more satisfactory means of realization, then the university is in trouble. Clearly, the university is betting that its targets will be unable to thoughtfully question either the extant meanings of "liberation" or the socio-historical circumstances productive of those meanings. Ironically, in view of the "goods" it is attempting to sell, the university is also publicizing the deformed quality of its goods. As Habermas writes:

> The interest of self-preservation cannot aim at the reproduction of the life of the species automatically and without thought, because under the conditions of the existence of culture this species must first interpret what it counts as life. These interpretations, in turn, orient themselves according to ideas of the good life. The "good" is neither a convention nor an essence, but rather the result of fantasy. But it must be fantasied so exactly that it corresponds to and articulates a fundamental interest: the interest in that measure of emancipation that historically is objectively possible under given and manipulable conditions. As long as human beings must sustain their life through work and interaction subject to instinctual renunciation, in other words under the pathological compulsion of deformed communication, the interest of self-preservation necessarily takes the form of the interest of reason, which only develops through critique and confirms itself through the practical consequences of critique (*Knowledge and Human Interests*, pp 288-289).

To the extent that critique has consequentially unmasked the invalidity of the university's propositional claims, the university will encounter an unreceptive audience and will have to secure, and publicize, other grounds for its continued self-preservation, not to mention its future well-being.

In the context of Dewey, Arendt, and Habermas, the reconstructive critique of an adolescent mind, regarded as the developmental product of both self and social formation, raises fundamental questions about the identity of both self and society. Why, for example, did that mind appropriate other voices in lieu of creating and expressing a voice less censorious of self? What factors converged with such power to impress conventional categories of thought upon a malleable mind self-convinced that it was engaging in thought by internalizing those categories? What reward structures enticed that mind to perform as it did? What needs had to remain suppressed so as to legitimize those rewards? What possibilities, of both self and society, are sacrificed in the dynamics of this suppression and in the interests of these legitimations? In pursuing answers to these questions, the mind must re-iterate itself through its own workings. By so doing, it reconstitutes the relations between mind and self and between self and society. It thus attains a fuller literacy in its readings of those relationships, in time understanding, as Habermas writes, why

> the "pursuit of happiness" might one day mean something different — for example, not accumulating material objects of which one disposes privately, but bringing about social relations in which mutuality predominates and satisfaction does not mean the

> triumph of one over the repressed needs of the other (*Communication and the Evolution of Society*, p. 199).

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TEACHING PHILOSOPHY AS A MATTER OF LIFE AND DEATH

Michael A. Kagan

Teaching brings risks. There are the technological and moral issues of the sciences, the challenges to our received ways of sensing offered by the sciences and the arts and literature, the shock of recognition from psychological and social science studies... Many fields have their traps and treasures. Philosophy, too, along with its consolations, has dangers for its students. It has had them at least since Socrates was charged with ruining his students' lives some twenty-four hundred years ago.

Philosophy threatens presuppositions about fundamental issues and is often concerned with crucial problems of human interest such as biomedical ethics, suicide, issues concerning the nature of good reasoning, the nature of good evidence, and the nature and extent of religious truth, as well as addressing questions like "how should one live one's life?" Part of the reason that philosophy is important is that it can challenge presuppositions which themselves may be helping our students live from day to day. That this challenge can at times be threatening comes as no surprise to those of us who have heard shrill and frightened responses to Camus' essay on suicide in our classrooms. We are morally obligated to exercise due care in teaching philosophy and in applying our critical methodologies to any position that may itself be keeping some of our students from being residents in mental institutions or place holders in the morgue. Younger students are at a high risk age for psychological breakdown.[1] We have older students entering mid-life and late-life crises. We need to be sensitive to students of any age who have developed personal belief systems which help them cope and which philosophical analysis threatens.

It should not come as a surprise when someone takes a philosophy course in order to address some personal question or concerns related to a philosophical issue. Nor is it puzzling to those of us who think philosophy can be relevant to problems of human existence to discover an oncologist in a biomedical ethics class who wonders why more of her patients don't commit suicide, or to meet a student in a logic course who feels that he has been victimized by fallacies, and isn't even sure what to think of his own thinking.[2] It seems obvious that philosophy touches on life in a philosophy of religion class. When their religious views are threatened, people may respond in a variety of ways. Sometimes these responses are so vitriolic that an instructor will have to eliminate discussion altogether, turning philosophy teaching into a one-sided dialogue, where the teacher professes, and the student smolders.[3]

It is easy for us as professionals concerned with arguments and analysis to forget that there may be another human being at the other end of our criticism, so excited do we become about the issue at hand. In the public arena of journal debate where we contend with other professionals in the search for truth, and deliberately open ourselves and our positions to the critical eye of our colleagues, this is one matter. In a classroom containing introductory students "enjoying" dormitory food, sleep deprivation, and radical lifestyle change, students who may lack definite focus about their own life choices, it would seem to be another matter entirely.

No, I am not suggesting that we censor Russell's attacks on traditional theism when we teach philosophy of religion, that we refrain from criticizing unfalsifiable world views when we teach metaphysics or philosophy of science, that we don't challenge our students as we are accustomed. I am suggesting that we pay attention to the effects of our words on them, to the tone of their voices when they respond to the challenges we present to their positions and attempts at systematic thinking. I think we should be willing to acknowledge that the philosophical challenge can be real. We might want to warn our students about what may be happening, and to be ready to respond in a helping way when they come to us after class shaking or screaming or obviously upset in some other way. I think we should pay attention to more subtle signals. I recommend we be prepared to make the appropriate referrals when we discover that what we gave as an interesting intellectual criticism is what they received as the uprooting of their latest psychological defense or a penetrating challenge to their way of life.

Neither is it being suggested that we become psycho-therapists, or that we are to blame when one of our students goes over the edge. Nevertheless, we might be able to help by being a little more empathic, by paying a little more attention to the responses our lectures and discussions generate, by being a little more careful, in the sense not only of "careful" preparation, but of "showing care for our students." It may even be the case that when we try a little harder to pay attention to the general motivations behind the questions we are asked, we may become better teachers, better midwives to our students attempting to give birth to their own ideas.

Some of us are more teachers of our subject than we are teachers of our students. Some excel in one direction, some in the other. Ideally, as teachers of our subject to students, we strive for both.[4]

In this paper, I try to show how critical thinking skills such as context-related analysis of presuppositions, critical reading, and empathic sensitivity to the human aspects of argumentation and instruction can be applied in particular cases by philosophy instructors and teachers in other disciplines whose subject matters may collide with their students' lives. To concretize this treatment, I present three cases where empathic critical thinking and teaching seem called for:

(1) Students recovering from addiction with the help of twelve-step programs that include belief in a "Higher

Power" in a philosophy classroom in which pragmatic arguments for the existence of God are being addressed;

(2) A student whose father is dying writes a paper for a "moral problems" class about "a real life case" that seems to reflect his present family crisis;

(3) A student's project on abortion seems to be an attempt to come to grips with her own previous abortion decision.

Let's begin here with a brief sketch of the relevant features of twelve-step recovery programs and pragmatic arguments for God's existence.

Pragmatic arguments for the existence of God argue that we are entitled on pragmatic grounds to accept claims that "work for us." In some areas, where evidence is not decisive, e.g, religion, believers have the right to believe in God's existence if this belief helps them get through their lives. Severe criticisms have been offered against this kind of argument by many thinkers including Clifford, Freud, Skinner, and Marx. Such criticisms are appropriately discussed when presenting and examining pragmatic arguments for religious belief in our classrooms.

Central to most twelve-step recovery type programs, with Alcoholics Anonymous being the paradigm case, is the requirement that members rely on a "Higher Power" that "could restore us to sanity."[5]

Through careful listening,[6] I discovered I had a contingent of recovering addicts in one of my classes.

The general procedure I followed here was to try to make empathic sense out of what the critics criticize in such arguments.

This is what I did: I presented the connection between William James's work on religious experience and the "Higher Power" in AA.[7] And, I paid attention when these students recommended an outside speaker from AA to present to the class. This was done while preserving the students' anonymity in the dialogue, with the exception of one, who spoke for the rest.

Now, I structure the introduction and discussion of these issues with the awareness that they are most serious to some students. What I am asking from you here, in the discussion periods, and from any who happen upon a copy of this paper, is for more suggestions and feedback about how to teach pragmatic argument for religion, and criticisms of such argument, to students, including those whose lives are being rebuilt on its foundations.

(2) A student whose father is dying writes a paper for a "moral problems" class about a "real life case" that seems to reflect his present family crisis.

Sometimes even a larger university is like a small town. One student, let's call him Ralph (whose father I know is dying), writes an extra credit paper for a moral problems class. The topic, one mentioned as a possibility in the syllabus, is "the obligations of the dying to the living." I read the paper, in which a "real life case" is mentioned, in which the father of a student is dying of cancer, and in which there are all kinds of problems since (a) the death process relates to the father's smoking and drinking habits (b) the family is under serious stress. Careful and critical reading, given the context (including noting when "slips" have been made), suggests the obvious to me, namely that the "real life case" is Ralph's own situation.

Context-related analysis of likely presuppositions indicates that Ralph does not want to talk about this as his own problem. For those of you here today, I'd like to hear what you would do *before* you hear my response. So please make a note of that at this time for our discussion period. And for those who happen to be reading this, you, too, might want to sketch out your own response to such a situation.

* * *

What I did, was to respond in kind. I made some phone calls, checking out community resources, and asking a few questions. Then, in my paper comments, I indicated the option of seeking outside help along with my other comments on Ralph's argument and presentation. Here, for example, is the summary comment on Ralph's draft:

> In sum, this shows great promise. You have tapped into a situation that shows how philosophy can be a matter of life and death. I hope you follow up on this. And, if the opportunity presents itself, can help the people in this real case with your own concern, your insights and information about community resources.[8]

(3) A student's project on abortion seems to be an attempt to come to grips with her own previous abortion decision.

In an undergraduate seminar on Heroism where one text, Carol Gilligan's *A Different Voice,*[9] sheds light on the challenge facing women making abortion decisions, one of the students decides to write a story about how an abortion decision was followed by a breakdown and some time in a mental hospital. This being a seminar, each student will be sharing her/his work with the others, and discussing it. She meets with me to discuss her project; making it clear that this was her experience.

In this case, careful listening indicates that this episode has happened recently, and that the student is just now getting back into school. The class is shockingly good, and is likely to detect the dynamic. They also are strikingly sensitive, and are unlikely to attack her. What kind of advice should her teacher give her? Once again, for those of you here now, I'd like to hear what you would do *before* you hear my response. So, please make a note of your response for our discussion period. And for those who happen to be reading this, you, too, might want to sketch out your own response to such a situation.

* * *

We talked it over. She seemed quite comfortable with doing and presenting the project. What little nervousness that came through seemed to be standard "I hope I do a good job" jitters. I recommended she write in third person, and referred her to some writing exercises from John Gardner's *The Art of Fiction.*[10]

Her third person account was powerful, and brought the class into the perspective of a young woman who made a very difficult decision that brought her in touch with aspects of herself. No one in class treated the character's experience as the writer's. In discussion, students tied in the material from Gilligan with the heroic challenge of making such a decision.

There's an unfinished quality to all of these cases. Perhaps it has something to do with the fragmentary encounters we have with our students. We meet together for a while. They go their way; we go ours. Even when we are together, we sometimes communicate anonymously, as on teaching evaluations. We hardly ever meet again. I don't know if that young author went on to become a philosopher or not. I don't know who wrote the "thank you note" on a teaching evaluation in that moral problems class; it means one thing if it was Ralph—another if it was not. And I don't know if those students are still sober.

Notes

[1] Such as onset of acute schizophrenia, suicide, and drug abuse.

[2] One student answered when asked why she was taking an introduction to logic course, "to save my sanity."

[3] This happened in a metropolitan community college during the past ten years, according to a personal communication from a member of that department.

[4] See Nell Noddings' *Caring: A Feminine Approach to Ethics and Moral Education* (Berkeley and Los Angeles: University of California Press, 1984), pp. 15-16, for example of this difference. Here, Nodding considers a case where a math student comes to the instructor with difficulties and disinterest in math — he says he hates it. One way to approach this is to "project my own reality onto my student and say, *You will be just fine*

if only you learn to love mathematics." Another way is to begin, "as nearly as I can, with the view from his eyes: Mathematics is bleak, jumbled, scary, boring, boring, boring. . . What in the world could induce me to engage in it? From that point on, we struggle together with it." If the care for the student is central here, then, she states, "What matters to me, if I care, is that he find some reason, acceptable in his inner self, for learning the mathematics required of him or that he rejects it boldly and honestly."

[5] In a classic statement of the twelve steps, the "greater Power occurs in step two; steps three, five, six, seven, and eleven explicitly mention God. See *Alcoholics Anonymous: The Story of How Many Thousands of Men and Women Have Recovered from Alcoholism* (New York City, Works Publishing Company, 1951), pp. 71-72.

I have been reminded by my colleagues, including Professor Susan Bordo at Le Moyne, that theological language at twelve step program meetings, e.g., references to "The Lord," can exclude women. Other theological aspects of this "higher power" have alienated some of my rabbinic colleagues (according to personal communication) who found themselves unable to continue in a traditional twelve step program. Given these problems, as well as other issues of dependency raised by participants at the conference on *Critical Thinking: Implications for Teaching and Teachers* in October, 1991, where this paper was first presented, it may be useful to discuss non-theistic recovery programs. Consider, e.g., Robert Meyers' "Can a Secular Humanist Coexist in Alcoholics Anonymous?" in *Free Inquiry* (Spring, 1987, Vol. 7, No. 2)7. Meyer provides further references. In the same issue of *Free Inquiry* (pp. 7-8) in "Secular Sobriety Groups: A Thriving Alternative," James Christopher argues for establishing an AA type program without the assistance of HP.

[6] No subtle technique. I paid attention when a student came up to talk to me after class.

[7] William James's work on religious experience is cited to explain the role of the Higher Power in AA in *Alcoholics Anonymous*, e.g., p. 38, and p. 399.

[8] The paper, for reasons of confidentiality cannot be shared. Those interested in the comments (if they are willing to make inferences as to what kind of statements in the original essay are being responded to) can receive a copy of the comments by sending a SASE to me at Le Moyne College with a note requesting "Comments on Ralph's Paper."

[9] *In a Different Voice: Psychological Theory and Women's Development* (Cambridge: Harvard University Press, 1982).

[10] *The Art of Fiction: Notes on Craft for Young Writers* (New York: Random House Vintage Books, 1983, 1985); one exercise, if I recall, was, ". . .a possible exercise in description: Describe a barn as seen by a man whose son has just been killed in a war. Do not mention the son, or war, or death. Do not mention the man who does the seeing" (p. 37).

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A CRITICAL PEDAGOGY OF VIRTUE

Rev. John J. Conley, S.J.

Contemporary American education usually pursues three goals: the development of skills, the enhancement of the self and the awakening of civic responsibility. Each model fosters a different conception of educational value. The "skill" approach stresses the acquisition of quantifiable knowledge and the development of techniques which increase this knowledge.[1] The "self-development" approach accentuates the psychological uniqueness of each student, with an accompanying premium placed upon self-expression.[2] The "civic" model underlines the responsible use of work to foster social values.[3] Each approach subscribes to a pragmatic theory of education, inasmuch as each conceives education's purpose as problem-solving, whether the problem be construed as technical, psychological or political.

These pragmatic approaches to education require critical evaluation. Not only does such pragmatism enfeeble educational alternatives by limiting appropriate models to one philosophical horizon, it fosters an impoverished anthropology, reducing human beings to homo *faber* in a quest of improvement. The primacy of the person is easily obscured.

Ironically, one tool for critically evaluating the dominant pragmatic model of education—and pondering alternatives to that model—is the "virtue" model of education which dominated the West, until the Enlightenment. Elaborated in the works of Aristotle[4] and Thomas Aquinas[5], this approach argues that the fundamental purpose of education is the fostering of human happiness, i.e., the flourishing of human beings through the perfection of intellect and will. According to this model, the primary mission of pedagogy is to foster certain intellectual and moral habits which determine the subject's thought and action.

The pedagogy of virtue has identified certain specific habits of intellect and will which characterize human flourishing. In the intellectual realm, virtue theory traditionally distinguishes between speculative and practical virtues. The speculative virtues are those habits of thought which permit the intellect to pursue truth for its own sake. The practical virtues are those habits of mind which guide the intellect in pursuing knowledge for the sake of action.

The key speculative virtues are science, understanding and wisdom. Science emerges as the habit of arriving at conclusions based upon evidence.[6] It can be considered as the art of inductive thinking, especially useful in generating new truths on the basis of already acquired data. Understanding is the habit of logical thinking: the avoidance of contradiction and the respect for internal coherence.[7] It is especially powerful in deductive sciences, such as mathematics. Wisdom is the habit of considering questions in the light of first causes, especially in light of the causality of God.[8] It permits the individual to integrate disparate bits of knowledge into a quest for the ultimate determinants of the real. The speculative virtues perfect the individual in the quest for truth inasmuch as these inductive, deductive and integrative habits maximize the individual's capacity to distinguish evidence from wish, logic from passion, value from insignificance.

The central practical virtues of the intellect are prudence and art. These habits permit the individual to strengthen the key human actions of acting well and doing well. Prudence is the habit of knowing what to do.[9] The prudential person repeatedly demonstrates the capacity to perform the right action toward others. Moral crises, where moral principles appear to conflict with each other, are the privileged *locus* for the emergence of prudential action. Art is the virtue of knowing what to make.[10] Unlike prudence, the focus of art is the external object to be made, rather than the intrinsic quality of the action. Although the virtue of art includes the area of fine arts, it has traditionally been conceived as the habit of making well in any area.[11] Although these virtues focus upon truth for the sake of human action, rather than truth for its own sake, they situate human knowledge in the pursuit of an inexhaustible good (the object of prudential action) and an inexhaustible beauty (the object of artistic action).

In the moral domain, virtue theorists have traditionally identified four cardinal virtues which perfect the will in its pursuit of the good. These virtues are prudence, temperance, fortitude and justice. A virtue of the intellect, prudence motivates the will by indicating the right course of action toward the neighbor.[12] Without this guiding role of the intellect, human willing would deteriorate into instinct or passion. Temperance disciplines the person's attraction to pleasure, permitting the person to choose the proper action, even when it entails sacrifice of comfort.[13] Fortitude disciplines the person's aversion to pain, freeing the person to choose the moral good, even when this choice provokes discomfort. Both fortitude and temperance stress the need to habitually moderate the passions through strengthening of the will. Otherwise, in difficult moral dilemmas, the subject will refuse to follow the indications of conscience, due to slavery to the pleasure-pain axis. Finally, justice is the cardinal virtue of the will. Justice represents a person's habitual disposition to give each person his or her due.[14] Although the modes of justice may vary from one situation to another,[15] the just person habitually seeks the good of the other. Just as fortitude and temperance free the will from inordinate passion in its desire for the good, justice frees the will from partiality and exclusion in its pursuit of an authentically universal good.

The Christian variant of virtue theory traditionally elaborates three virtues in the religious domain which strengthen the believer's communion with God. Along the lines proposed by the Pauline epistles,[16] these virtues are identified as faith, hope and charity. Faith

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represents the habit of belief in God's revelation.[17] Hope is the habit of confidence in God's providence and salvation.[18] Charity is the ecstatic love of God and creature, rooted in divine grace.[19] Although generated by the indwelling of the Holy Spirit in the believer, the theological virtues are not simply additions to the intellectual and moral virtues. Rather, they further strengthen the intellect in the pursuit of truth and the will in the pursuit of good. Charity, for example, unites and intensifies the moral virtues in a single movement of love toward God and God's creation.

Pedagogy which considers growth in virtue as the chief purpose of education possesses certain traits which distinguish it from contemporary models. The virtue model critically raises questions about the presuppositions of the pragmatic approaches to pedagogy.

First, the virtue model of pedagogy stresses the integral development of the student as the central goal of education. In the virtue framework, formal and informal education must harmoniously foster the student's growth in disciplined habits of thought, moral action, technical production and communion with God. Although the virtues may be distinguished in theory, in practice they impinge upon each other and require coordination in the educational process. Growth in charity, for example, conditions changes in the practice of justice.

This insistence upon the integration of intellectual, moral and religious habits in a single schema of education contrasts with the splintering of educational disciplines which characterizes more pragmatic models. In the intellectual domain, pragmatic education concentrates upon the development of information-specific skills. There is only implicit support for fostering the general habits of science, understanding and wisdom—for the flourishing of human intelligence as such. Current pragmatic approaches witness even greater reserve toward the formation of moral virtue. For many educators, morality is a matter of such privacy that the role of education in fostering prudence or fortitude becomes problematic. Religious formation becomes even more difficult, as it is systematically sundered from intellectual formation. This splintering of technical, moral and religious education creates the daily experience of the fact/value dichotomy, where an intense drilling in technical facts, enforced by law in the schools, contrasts with the spotty efforts at moral and religious education conducted, if at all, in the ruins of the family and the church. The gropings around values clarification and the vague revival of religiosity indicate the uneasy void created by the disappearance of a virtue pedagogy which proposed the harmonious development of habits of intellect and will.

The pedagogy of virtue also focuses upon the formation of human character as a central mission of education. Even in the purely intellectual realm, the virtue theory of education does not restrict itself to the development of skills. It concentrates upon the formation of wise, logical and scientific persons who approach any question according to the configuration of these dispositions. More importantly, virtue-oriented pedagogy stresses the development of moral character as a key goal of the educational process. The emergence of the student as courageous or chaste becomes a salient preoccupation of the teacher and school.

When I was a pupil in parochial school in the 1950's, the report card had two different sections. One section contained the grades for intellectual disciplines. The other contained the grade for moral habits, such as courage, diligence and perseverance. The nuns would warn us, already nascent Yuppies, that the left side (the moral virtues) was as important as the right side (the academic achievement). By the 1970's, the grades on moral virtue had vanished. As one of my cousins remarked, "How can you grade somebody on courage?" and "Your morality is no one else's business." Of course, how does one grade a person's math or English or geography? But we continue to insist upon such evaluation based upon quantifiable knowledge. Like religious virtue decades before, moral virtue has retreated into an obscure zone of privacy, although we remain vaguely aware that religious and moral beliefs profoundly shape the public square.

One final characteristic of a virtue-oriented education is the recognition of intrinsic worth in the goals of human endeavor. The intellectual virtues of science, understanding and especially wisdom arise out of respect for the truth itself. Even the practical intellectual virtues, prudence and art, focus upon a transcendent good and beauty which demand the attentive appreciation of the student. The pedagogy of the moral virtues initiates an asceticism whereby the student is freed to adhere to the other through a gradual liberation from undue passion. Similarly, the virtue of charity motivates the believer to love God for God's own sake rather than restrict love to a recognition for services rendered. This liberation of the person to a contemplative and practical respect of intrinsic values distinguishes virtue pedagogy from pragmatic pedagogies which tend to instrumentalize the transcendentals into practical means toward the resolution of problems.

The merits of a virtue-oriented pedagogy have led many critics of contemporary education to support the renewal of virtue pedagogy as an alternative to current educational practices. Philosophers as diverse as Maritain,[20] MacIntyre[21] and Hauerwas[22] have argued the value of an integrated formation in virtue as a replacement for the technical, atomized and value-neutral education which still dominates the West.

This retrieval of a virtue-oriented pedagogy, however, is more problematic than its current supporters suggest. Such a revival must critically evaluate the anthropological and social underpinnings of virtue theory which render the retrieval of such theory difficult in contemporary Western culture.

First, the classical-medieval theory of virtue rests upon a fairly uniform anthropology. Earlier pedagogues could confidently identify the key habits for cultivation because these habits were considered proper to human nature. The Aristotelian stress upon the speculative intellectual virtues, especially wisdom, is tied to a theory of the superiority of contemplation over manual work. The leisured aristocrat devoted to the contemplation of first causes become the norm of human nature fulfilled.[23] The emphasis upon the discipline of the passions through the intellect marks the classical account of virtue, rooted in an anthropology which systematically reduced *human* nature to *rational* nature. Although the details of virtue theory have varied, this account of human habit grounds itself upon a unitary theory of human nature, an intellectualist brand of aristocrat, with little berth for individual differences.

Recognizing the exclusionary limits of this uniform anthropology, certain contemporary supporters of the renewal of virtue education have attempted to describe virtue in terms of relation rather than nature.[24] Such an account would carefully attend to the distinctive virtues which perfect the doctor or the politician, the entrepreneur or the unionist in their respective relationships to the self, the neighbor, the cosmos and God. Such a differential and relational approach to virtue can mitigate the dangers of an uncritical retrieval of classical-medieval anthropology which easily relegates the artisan to the margins of humanity according to an implicit norm of human nature.

A related problem is the heterogeneous quality of contemporary Western society. It is not accidental that virtue-oriented education has thrived in societies marked by broad consensus on the political-religious ends of human existence. Contemporary society, however, defines itself precisely by discord upon even the most general purposes of human existence. Formation in religious virtue in a public setting has long proved impossible, even illegal. Formation in moral virtue has proved problematic, given not only the violent disputes concerning the rightness of particular actions but also given the conflict whether the identification of right and wrong as such is more than a product of convention or passion. In such a social setting, which increasingly conceives "rights" as the freedom to construct divergent personal destinies, any formation in character becomes suspect.

The anthropological and social underpinnings of virtue theory should caution those who support the contemporary revival of virtue pedagogy. Opposed to the pragmatic reduction of education to problem-resolution, education for virtue offers the alternative of an integral formation of the person through strengthening the habits of intellect and will. The challenge for the contemporary retrieval of virtue education is to ground such integral formation in a pluralist, rather than aristocratic, anthropology and in a society where the union between throne and altar has long since disappeared.

Endnotes

[1] Cf. National Commission on Excellence in Education, *A Nation at Risk: The Imperative of Educational Reform* (Washington,D.C.: The Commission, 1983).

[2] Cf. Carl R. Rogers, *Freedom to Learn, A View of What Education May Become* (New York: Merrill, 1969).

[3] Cf. John Dewey, *Democracy and Education: An Introduction to the Philosophy of Education* (New York: Free Press, 1966).

[4] Cf. the treatise on virtue in Aristotle, *Nicomachean Ethics* II-VI.

[5] Cf. the treatise on virtue in Thomas Aquinas, *Summa Theologica*, I-II, Qq. 55-64.

[6] Cf. Ibid., Q. 57 art. 2.

[7] Cf. Ibid., Q. 57 art. 2.

[8] Cf. Ibid., Q. 57 art. 2.

[9] Cf. Ibid., Q. 57 art. 4.

[10] Cf. Ibid., Q. 57 art. 3.

[11] For a discussion of the historical transitions in the theory of the virtue of art, Cf. Jacques Maritain, *Art and Scholasticism*, trans. Evans (South Bend: University of Notre Dame Press, 1974), pp. 10-22.

[12] Cf. Thomas Aquinas, op. cit., Q. 61 art. 2.

[13] Cf. Ibid., Q. 61 art. 2.

[14] Cf. Ibid., Q. 61 art. 2.

[15] Cf. the distinctions among distributive, retributive and reciprocal justice developed in Aristotle, *Nicomachean Ethics*, Bk. 5.

[16] Cf. Saint Paul, 1 Corinthinas 13,13.

[17] Cf. Thomas Aquinas, op. cit., Q. 62, art. 3.

[18] Cf. Ibid., Q. 62 art. 3.

[19] Cf. ibid., Q. 62, art. 3.

[20] Cf. Jacques Maritain, *L'Education a la Croisee des Chemins* (Paris: Egloff, 1947).

[21] Alasdair C. MacIntyre, *After Virtue: A Study In Moral Theory* (South Bend: University of Notre Dame Press, 1984).

[22] Cf. Stanley Hauerwas, *A Community of Character: Toward a Christian Social Ethic* (South Bend: University of Notre Dame Press, 1981).

[23] Cf. Aristotle, *Nicomachean Ethics*, Bk. X., ch. 7-10.

[24] Cf. Randolph Feezell, "Sport, Character and Virtue," V33 *Philosophy Today* Fall 1989 pp. 204 ff.; Mary Ellen Ross, "Feminism and the problem of Moral Character," V5 *Journal of Feminist Studies in Religion Fall* 1989 pp. 47 ff.; J.B. Schneewind, "The Misfortunes of Virtue," V101 *Ethics* October 1990 pp. 42 ff.

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THE CASE FOR INTELLECTUAL RIGHTS IN THE FORMATION OF JUSTIFIABLE VALUES

Bertram Bandman

Introduction

Democratic values are increasingly recognized as fundamentally important to all people at all times, a veritable candidate for counting as justifiable values, values eminently worth teaching. Several recent world events illustrate how rights based democratic values are on the rise. In this paper, I will try to show that (1) intellectual rights and virtues help advance legal, moral and political rights. (2) Legal, moral and political rights, with appropriate intellectual underpinnings, strengthen democratic values and institutions, and (3), the educational formation of rights based democratic values, through teaching, provides justifiable criteria for distinguishing between right and wrong.

The case for intellectual rights begins with (1) the right to know, which generates a succession of related, overlapping intellectual rights, including (2) the right to inquire, (3) the right to infer, (4) the right to believe, and (5) the right to decide. (1), (2) and (3) lead to the right to believe. This right has implications for the formation and teaching of justifiable values in children, parents and teachers. According to "the Ethics of Belief" approach to be applied here, some beliefs are better than others. The right to believe imposes cognitive restraints and responsibilities on one's beliefs, and rules out irrational beliefs, such as astrology, Creationism, Racism, Sexism, anti-Semitism, unfair discrimination and repression (The latter are cited by A. Gutmann, in *Democratic Education*).

Rights to know, to inquire, to infer and to believe imply the further (5) right to decide, choose, judge, examine and evaluate. The route from intellectual rights to legal, moral and political rights and to rights-based democratic values points to justifiable criteria for deciding between right and wrong.

The claim that there are intellectual rights is a controversial thesis. M. P. Golding denies that there are such rights[1] whereas A. Gewirth asserts that there are such rights.[2] I will try to show that there are such rights and that these rights are fundamentally important to all other rights as well as to the formation of democratic values.

1. What Are Rights and Intellectual Rights?

1.1 Rights are justifiable reasons for claiming, having or doing in accordance with one's fair share. Five conditions of rights worth having are that 1) one is free to exercise them, 2) correlative duties and responsibilities apply to oneself and others, 3) rationally defensible principles of justice affect the meaning of any right, 4) Rights imply enforcement and 5) Compensation is given to victims of rights violations.

Intellectual rights are rights to think (illustrated in the film *Inherit the Wind*, about the issue of Evolution vs. Creationism), rights of the mind, rights to have intentions, purposes, goals, fears, hopes, aspirations, pursuits, projects and beliefs; rights to ask questions, to probe, to assume, expect, surmise, guess, suppose and presuppose, to examine and evaluate and to evaluate and challenge assertions, claims, arguments and explanations; and to acknowledge whatever rational merit there may be in challenges by others. Intellectual rights are rights to think, inquire, to have and to express opinions based on reasoned arguments, to make judgments; to form, examine and assert beliefs with rational grounds and constraints.

Gewirth cites several examples of intellectual rights. One of these is an example from A. J. Ayer's conditions for having knowledge that one "should have the right to be sure."[3] As this right "may be earned in various ways," it is not inborn or innate. On Ayer's account, "one is conceded the right to be sure when one is judged to have taken every reasonable step toward making sure..." The right to be sure backs a claim to knowledge, though not infallibly, according to Ayer. There is, however, a problem for anyone claiming to be sure, especially if one's grounds are fallible. There may also be controversial propositions before us, with one group of persons believing what the other denies, and where one needs to appeal to an impartial third party that is sure and that is also capable of rationally persuading reluctant groups to accept this third party's "right to be sure." If a third party however, has not earned the right to be sure, it may take a fourth, fifth, sixth or seven hundredth party to come to a justifiable decision. That is the way it is with intellectual rights; they are soft and murky, pluralistic, flexible, loose. For one cannot be sure about anything. I will return to Ayer's "right to be sure," but for now I want to complete Gewirth's other examples, such as the "right to assert, believe, assume, consider, infer..."[4] More to the point is to find earmarks for distinguishing intellectual from non-intellectual rights, if there are any. The right to vote, for example, does not seem to be quite like these other rights. But the lines are difficult to draw and one might speak instead of intellectual and non-intellectual aspects of rights. One does, after all, think when one votes, writes or speaks. Intellectual rights seem to strengthen other rights.

According to J. Conant's account of Jeffersonian democracy, Jefferson conceived of the aim of the American republic to be to combine a universal franchise with "the aristocracy of talents," thus implying public enlightenment. On this view, rights to "life, liberty and the pursuit of happiness" involve intellectual aspects. On Conant's view, the intelligent exercise of rights are what the founding fathers assumed or aspired to or hoped for in the common populace.[5]

The right to give informed consent to policies and practices that govern one's life illustrates the faith in democracy of some of the founding fathers. The right to decide whether to give informed consent is, moreover, illustrated in a patient's right to decide what happens in and to his or her body. J. Thomson argues that if a woman has any rights at all she has rights in and to her body.[6] Intellectual rights, such as the right to give or withhold consent, implies the widespread use of intelligence, and supports J. Dewey's insight that "intelligent thinking leads to an increment of freedom of action, an emancipation from chance and fatality." Yet there seem to be fairly clear examples of intellectual rights (where intellectual rights are clearly apparent).

2. *The Right to Know*

The first of these rights is the right to know. The power to decide how to live one's life is one of the most cherished rights of a democracy, and it depends on the right to know one's options, as well as to give subsequent consent to the policies and practices that govern one's life. According to such a view of rights, individuals are helped to achieve the knowledge they need to decide intelligently and wisely the course of life they wish to follow. A woman, along with a man, has the right to decide whether to trust a prospective suitor in any intimate relation. The right to know implies respect for persons who have mental states and emotions along with physical aspects. The truth of what is communicated and the absence of deception are involved in being regarded as a person. Suppose Harry Jones, for example, conceals his positive HIV status from Martha Smith, the woman he wants sexual intimacy with, that deception is a violation of Martha's right to be treated with respect as a person.

According to Aristotle, all people by nature seek to know. This is shown in the delight we take in our senses. Such a universal desire is surely worth recognizing as a treasured intellectual right. Although everyone seeks to know, on the grounds that what one knows will help rather than harm one, if Aristotle's view of human nature is on the mark, there is often in our lives an absence of knowledge, which is, of course not incompatible with a desire for knowledge. We may try to make up for our ignorance, such as when a detective is first told of a murder, but has as yet no clue, but would like to know, and then tries to find the answer. As Charles Peirce eloquently phrased this sentiment, "He who burns to learn, no matter how small his knowledge may be, he is my brother." The desire to know and the right to know may be among our goals, but one may not always have these at hand. One also need not be riveted by the duality between knowledge and ignorance. There are alternatives in between these, such as inquiry, inference, going after the puzzle, forming a hypothesis, guessing or estimating, which is often what we do when we drive, eat or live, for example.

By analogy, a mountain climber finds security and solace in discovering a path or a guideline in rocks or snow and in resting places. Here, too, the climber after knowledge finds help and guidance in coming upon fairly secure beliefs along the way. Such beliefs give the climber after knowledge a basis for acting or for taking the next step. In a slightly different locution, M. Lipman refers to standards and criteria as guidelines to inquiry in a roughly similar vein.[7]

The right to know implies the right to go wherever the way leads, following Socrates' noble and notable example. This includes the right to read and to discuss argue about controversial issues. The right to know, accordingly implies the right to keep the way of inquiry unblocked, to again heed a maxim of Peirce's. I turn then to the right to inquire.

3. The Right to Inquire

As Plato suggested, we are not gods who know through osmosis or through some instantaneous process. We know by learning. We know by learning to inquire. We don't only learn facts, though we learn them, too.

To inquire is a necessary condition for exercising the right to know. Our psycho-physical make-up contributes to our assertion of the right to inquire as an important right among those we enjoy.

One may distinguish five senses of inquiry. To inquire may be (1) to look for relevant answers to factual questions, such as "What are the causes of various cancers and other baffling diseases?" (2) To seek clarification, explication, or logical proof in answer to a formal or definitional question, such as "What is life?" or "What is a right?" (3) To ask an evaluative question, such as "What is good about capitalism or socialism, abortion, euthanasia, capital punishment or the right to own a gun?" (4) To express puzzlement, bewilderment, surprise, bafflement, paradox, quandary, dilemma or mystery about ultimate or unusual questions, as in Leibniz's question,"Why is there something rather than nothing?" or Dostoevsky's question, "Why do human beings suffer?" (S. Toulmin refers to the latter as an example of a limiting question, a question that seems unanswerable...) (5) To examine, analyze, investigate, question, challenge, cast doubt on received answers to formal, factual, evaluative and ultimate questions in (1) through (4)

Some inquiries can only be expressed as bafflement as in (4). Other inquiries are straightforward factual questions, as in (1), such as a job application form requires. To some kinds of questions, there are confirmable or relatively well established answers. For still other questions, there are reasons to examine and rigorously to question answers given in (1) to (4). To inquire in either of these senses is to inquire in the last sense of the term as well. Inquiry may occur in either or all of these five senses, but to inquire consists in not blocking the fifth sense from applying, except for rationally justified limits to inquire, following C.S. Peirce's adage, "Do not Block the way of inquiry."[8]

One may gather from this account of the right to inquire that this right depends on intellectual virtues, such as wisdom and courage, and a deeply entrenched respect for, and commitment toward, maintaining freedom, truth and justice.

To have a right to inquire based on freedom is to be accorded a sphere of autonomy, to exercise one's right as one chooses and to be immune to the charge of wrong doing for exercising one's right. The right to be free to inquire includes the right to choose between options p or q as to which is correct. The right to be free to inquire importantly includes the right not to be brainwashed, lied to, kept ignorant, deceived, tricked, unwillingly put to sleep or given tranquilizers, Ritalin or forced to beg or have one's body touched or intruded without permission, or, more generally, treated involuntarily or coerced without compelling justification.

As the right to inquire is addressed to the educational formation of democratic values held to be justifiable, the right to inquire is about the child's right to inquire and the rational limits placed upon such a right.

4. The Right to Infer

Inquiry is not always successful or a completed act of thought. Sometimes, one infers, guesses, surmises, concludes and a series of inferences may comprise an inquiry or investigation, philosophical or otherwise. One may accordingly ask if there is a right to infer as well as to inquire. If there is a right to inquire, then there is a right to infer to a conclusion. To infer is to take one proposition as given as assumed and arrive at a further proposition, judgement, decision or choice as one's conclusion. To infer is to judge, evaluate and to examine the relation between premises and conclusion; and this may extend from formal logic to the complex findings of astronomy or medicine.

To have the right to infer means one has earned the appropriate credentials, whether it is as a physician, engineer, accountant, lawyer, teacher or student. To have the right to conclude means one has the right to judge, choose or decide, and this applies to a gardener, horticulturist or chef.[9]

Can one stop one from drawing faulty conclusions? Competent examiners, teachers and professors do it all the time in evaluating their students, whether in biology, psychology, history, physics, music, law, medicine or philosophy. The grade of F is a way teachers have of stopping students from making poor inferences. Moreover, employers, whether supervisors, managers or owners, judge their subordinates and hire, promote and fire them on the basis of the effectiveness of their subordinates' inferences, guesses, estimates, conjectures, speculations and judgments.

A person who regularly achieves results through inferences adds to our hope, trust and confidence that the next series of inferences before us are the right ones, and gives to a person who makes such inferences the right to infer.

According to Joel Feinberg,

> Rights and liberties are bestowed by rules of many kinds — rules of games, such as chess and baseball, rules of nongovernmental institutions such as clubs and learned societies, even the rules of logic, which grant us under certain conditions, the "right to infer."[10]

One could add that there are rules of science as well and that these, too, grant us under specified conditions rights to infer on the basis of what is given. Social institutions, including schools and colleges similarly have rules that award to those who operate within them specifiable rights to draw inferences in keeping with their activities. Those who function in schools and colleges include children whose very futures depend on their and our ability to develop inferential skills and powers.

5. *The Right to Believe*

Rights to know, inquire and to infer culminate in the right to believe. Such a right has been pressed by writers, such as Locke, Hume, Russell, and, most prominent of all, William Clifford, in an essay, "The Ethics of Belief." Such a right has recently been defended by Gewrith. Among those who defend the right to believe are those who argue that one only has a right to believe if one has adequate, relevant evidence. But defenders of such a right are not only confined to those who are called "Evidentialists." In fact, W. James' essay "The Will to Believe" was intended to strike down Clifford's idea that one may only act if one has an evidentially based right to believe. One James's account, one need not have either complete evidence or even any evidence to have a right to believe. But James does not disavow that one may have a right to believe. He even prefers evidence, but he acknowledges that there are acts in life that require one to make decisions about which the evidence may not be available. He cites an Alpinist who must risk his life either by leaping or remaining on a dangerous precipice and who narrowly avoids a disaster only by leaping. For James the conditions for having a right to believe are not as stringent as they are for Clifford.

Other critics of the right to believe are less gentle. One such challenge from an English professor and colleague, R. D. Spector, goes as follows: "Who can stop me from believing anything I want?" A still further type of challenge is by Matthew Lipman. He identifies the Cliffordian Evidentialist requirements for having a right to believe to be a form of thought control, repugnant to the freedom to think and an unwarranted interference with a person's psyche, a gross violation of the right to a person's inmost privacy.[11] According to Lipman, one may believe whatever one wants, and no one may interfere or intervene. To interfere is to engage in totalitarianism, an unacceptable form of repression, anathema to free minds.

There is much to be said for these challenges about which more will later be said. Although I think I understand these challenges to a right to believe, I join in the defense of such a right. As for the first challenge, "Who can stop one from believing?" the answer is in one respect "No one," if one means by one's beliefs one thoughts. For one can think and believe whatever one wishes in the privacy of one's mind. But in another respect, namely the expression of one's beliefs, the community, a corporate body or a strong family member can interfere with the expression and development of one's beliefs. A community that opposes the theory of evolution, for example, can interfere with the expression and development of the teaching of evolution, as the Tennessee Scopes trial amply demonstrates. There have been other notable challenges to the right to believe, including the attempt to suppress Socrates, Galileo, Darwin, Pasteur and Freud, to cite a few. I will turn to Lipman's concern in a short while. But first there is this note to consider.

Recently, R. M. Chisolm has recast "the ethics of belief" debate as an issue between those who, like R. Firth, argue that epistemological justification is an analogue of moral justification in distinction to those, like Chisolm, who hold that epistemic justification is a subspecies of ethical justification.[12] One might pose some other questions: Which is the king or rule maker of justification, ethics or epistemology, esthetics or some other? What field or intra field sets the standards for justifying facts and values? C.S. Peirce held that logic and ethics worked under the rubric of the normative or ethical. To those philosophers, as with Plato before them, when estimating the role of the true, the good and the beautiful, the good wins out, calls the shots, provides the criteria. The epistemic, the true, works within the moral and the normative. That is where Chisolm is coming from. To elaborate further, the question Chisolm poses is this: Is an epistemic duty "not an ethical duty"? Or is an epistemic duty one that "pertains to believing reasonably"? What is the underlying question in "the ethics of belief"? Is it what to believe or how to justify epistemic and ethical statements? To Chisolm and to Firth, the question is how to justify epistemology and ethics either that epistemology is an analogue of ethics or that epistemology is a subspecies of ethics (Chisolm).

One might argue that truth drives goodness, that the epistemic drives morality, largely along the lines of Kant's "ought implying can." That is, if people know better between alternatives, then they are responsible to do the better one. Without the realm of truth, there is no goodness; and within epistemology, which yields the evaluative use of t/f predicates, there is the doxastic domain, where beliefs are the coin of the realm and some are judged better than others.

Belief is partway between knowledge and ignorance. Belief is often all we have to act on. Beliefs are what we in the end have to trust, largely because we have nothing else to go on. So, we appraise people's beliefs as we do their looks, their clothes, their pedigree; only we take their beliefs more seriously. We hire and fire people because of what they believe, except in an utterly two faced society that abounds in hypocrites who say they believe one thing while doing another. And we are hired and fired, promoted and demoted, and esteemed well or badly by our beliefs. Our beliefs are the closest things to our "souls," minds or

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innermost beings, because they are and reveal our character, what we are prepared to do under certain conditions and provocations. On one account, Socrates identifies his being with his beliefs, and he continuously examines his and other people's beliefs.

About one's beliefs there is the laborer who will strike if not permitted to have the free use of soap in the company washroom; the professor who will speak only French for the entire hour during an advanced French literature class; the tourist who visits old ruins, the patron who eats the lobster on his plate, the dentist who uses a high powered drill to repair a patient's cavity. These and countless others all do what they do because of what they believe. The world is for us not only what we wish or perceive, but what we believe. We take the actions we do because of what we believe there to be. Beliefs undergird actions. We control our cars at the speeds we do because of our beliefs that going faster or slower is not as efficient, safe and desirable as maintaining those controls.

If one can't read carefully and is not supposed to use regular milk because of its fat content and one sees two milk containers, one marked "Skim," the other plain, and one careless uses plain milk, in time there may be consequences. Epistemic considerations of t/f obtain. Is it skim or plain milk? "Trivial," says Henry. But there are analogues that are serious. A driver doesn't pay enough attention to the "slow" and "stop" signs. Paying attention is a driver's responsibility. Holding responsibly held beliefs about the road conditions makes a difference to the safety of everyone involved. Believing that speeding and smoking are harmless contributes to danger. A patient wants to stay alive and is told by his doctor to take a particular medication, G, which Max hasn't the expertise or time to research. The doctor has strong evidence and believes truly that G is better than any alternative. Max's well-being depends on his believing in the doctor. Here, "ought implies can." The epistemic principle that the truth matters and what one truly believes matters. The epistemic drives the moral. The moral turns on the epistemic. It pays to believe that skim milk is better than regular milk, at least for the dieter.

This leads me to a slight digression to Ayer again. One could fault his notion of a right to be sure on several grounds. One is that one seldom earns the right to be sure in the face of a fallibilist universe and against a sea of counterexamples. However, in favor of the essential idea behind such a right is that one may modify such a right to mean the right to be reasonably confident or to believe reasonably. We often don't know, and aren't sure, but we can and do have a fall back position. We can believe, but among beliefs, some are frivolous, At the other extreme some beliefs are excessively restrive. (I am influenced here by a paper by I. Levy). But there is a third alternative, responsibly held beliefs. The upshot is that one has the right to be less than sure, just reasonably convinced. If one can have the right to be reasonably convinced rather than sure, then one can have the right to believe.

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According to a well worn theme, belief is part way between knowledge and ignorance. Whereas to know is to be sure, to believe is to be reasonably confident. To believe is to acknowledge an absence of knowledge. A belief, however, need not be purely psychical or exclusively internal to a person. One can share a belief.[13]

Beliefs are not all there is to action. There are also desire and obligation. I. Copi presents a helpful example. My eating what is on my plate depends on my desire to eat and on my belief that what is on my plate is edible. Beliefs are a necessary but insufficient condition of action. In some recent bombing, the Allies believed that they hit bunkers in Iraq, although they hit air raid shelters with women and children inside and a hospital nearby. The airmen's beliefs were faulty. False beliefs are a cause of human tragedy. The epistemic and the doxastic drive the moral.

To bring this to Lipman's corner, one may distinguish two senses of a right to believe. If one prefers to be left alone then believe as you wish. But if you want reasonable guidelines to believing wisely, you will identify a preferable belief as one backed by reasons and evidence wherever possible. More people will trust you if your beliefs are shared, openly stated, reliable and responsibly held.

Perhaps Clifford's requirement is too stringent. Chisolm's view that a belief is innocent until proven guilty is, perhaps, too free and easy to be useful. A middle course is to have adequate or reasonable beliefs along the lines of Russell's Precept of Veracity, which holds that a rational person is one who believes in proportion to the evidence. We may refer to this person as a Methodological Maxim, which says: If you want your belief to be worth holding, you will seek reasoned evidence for that belief. Although beliefs aren't all true or false, enough of them are, or at least right or wrong; and, in either event, better, it seems to seek the true or right belief over the false or wrong one. Why believe if it isn't true or right? Who among believers wishes to be deceived?

Beliefs are the coin of the realm; they affect action. Their value is vital to performing good rather than bad actions. Putting the epistemic and doxastic horse before the moral cart helps one exercise one's examinable moral principles and beliefs, and to do so in accordance with a saying of C.I. Lewis's that "we could handle the villains if it weren't for the fools, who act on dubious principles and beliefs. Improving our morality depends on examining the epistemology of beliefs that drives our morality.

The right to know implies the right to inquire, which in turn, implies the right to infer, examine, evaluate and judge. The right to infer gives rise to the right to believe in one's conclusions. The right to believe is the right to come to settled opinions and claims, to express one's assent or acceptance and commitment to a stand. The belief one comes to is never irrevocable, but it is cognitively strong enough to justify one's have a right to hold such a belief.

6. The Right to Decide

The right to believe implies the right to decide. One belief, for example, in voting for a candidate is expressed in voting for that candidate. The right to believe implies the right to decide. To believe in a candidate implies that one is prepared to vote for that candidate. Belief implies action.

7. The Link Between Intellectual Rights

Intellectual rights are linked in a coherent, consistent manner. The fifth flows out of the other four. Even if the object of the first, to know, is often unachievable, the fourth and fifth, to believe and to decide to act, are achievable, but only through the exercise of the interim rights to inquire, to infer and to examine.

8. The Impact of Intellectual Rights on the Formation of Democratic Values

The rights to know, inquire, infer, believe and decide help generate procedures, processes, paradigms, values and institutions with focused energy and constraints that contribute to "a community of inquiry." To such a community, involving rational "checks and balances" and rule by all who participate with appropriate training, freedom and democracy thrive. Intellectual rights provide conditions for the development of rights based democratic values. The recognition of intellectual rights therefore contributes to a community of inquiry, one that fosters legal, moral and political rights, which, in turn, helps advance rights based democratic values.

Conclusion

The case for intellectual rights contributing to the formation of rights based democratic values begins with the right to know implied by the consent phrase in "The Declaration of Independence," which states that those who govern do so with "the consent of the governed." One cannot intelligently give consent without the right to know. The right to know, in turn, generates the right to inquire, the right to infer, the right to believe and the right to decide. The right to believe, discussed by William Clifford implies cognitive restraints and responsibilities on both the content of one's beliefs and the manner of maintaining those beliefs, such as the belief that pathogens rather than evil spirits are a cause of infectious diseases. Finally, the right to believe, crucial to rational rights based values, implies the right to decide to act in accordance with one's beliefs.

Intellectual rights are linked consistently, coherently. The fifth, the right to decide, flows out of the other four. On this view, the right to believe augments the right to know as a sustainable goal of education. But the cupboard of intellectual rights would be bare without a deep background structure of intellectual virtues, the cement of rights language. These virtues include integrity and respect for truth, trust,

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commitment to "a rational community of inquiry," wonder, generosity, caring, courage, an enlightened perspective and love of wisdom.

If intellectual rights and relevant skills of intellectual criticism are appropriately imbued in human activities, processes and institutions, including families, schools and colleges, and public places that foster related virtues, then rights based democratic values flourish and have a chance in the struggle between competing values. Rights so formed provide an effective foil to nondemocratic ways of life, and help one to choose between right and wrong.

Endnotes

[1] M. P. Golding, "The Primacy of Welfare Rights," in *Social Philosophy and Policy* Vol. 1, No. 2, Spring, 1984, p. 127.

[2] A. Gewirth, *Reason and Morality*, Chicago: The University of Chicago Press, 1978, pp. 69-70, 371.

[3] A. J. Ayer, *The Problem of Knowledge*, London: Macmillan, 1956, pp. 34, 44.

[4] A. Gewirth, *Reason and Morality*, p. 70.

[5] J. B. Conant, *Education and Liberty, The Role of Schools in a Modern Democracy*, Cambridge, MA: Harvard University Press, 1953, pp. 32, 87.

[6] J. Thomson, "A Defense of Abortion," *Philosophy and Public Affairs*, Vol. 1, No. 1, Fall, 1971, pp. 47-66.

[7] M. Lipman, *Critical Thinking: What Can It Be?* Institute For Critical Thinking, Series 1, No. 1, 1988, pp. 3-11.

[8] C.S. Peirce, *Collected Papers*, Cambridge, MA: The Belknap Press of Harvard University Press, 1960, Vol. 1, p. 56.

[9] I benefitted from discussions with Mark Weinstein regarding tacit restraints on intellectual rights.

[10] J. Feinberg, *Social Philosophy*, Englewood Cliffs, NJ: Prentice-Hall, 1973, p. 55.

[11] Matthew Lipman presented these thoughts to me in unpublished form.

[12] R. M. Chisolm, "Firth and the Ethics of Belief," *Philosophy and Phenomenological Research*, Vol. 51, No. 1, March, 1991, pp. 119-128.

[13] Are there epistemic duties? That epistemic duties are paramount is a third position, one I hold, e.g. truth telling. If one believes that Dr. Able knows or believes responsibly that if Dr. Careless gives Patient Eagerly medication G instead of Y, then Eagerly will die; and Dr. Able believes responsibly enough to do something about it, to tell and also to persuade Dr. Careless to give Y instead of G, thus helping to save Patient Eagerly's life.

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THE ROLE OF THE UNIVERSITY IN TOLERATING, SUPPORTING OR OPPOSING POSITIONS OF "POLITICAL CORRECTNESS"

Marcia Sachs Littell

I wonder how many of us here know where the term "Politically Correct" originated? It was a term which was applied during the Stalinist era, in the communist party, to the discipline which kept the "intellectuals" in line. Whether it was the Soviet/Nazi Pact or the attack on Finland or some other change of "line," the campus comrades, the intellectuals, were supposed to give it the politically correct interpretation. They helped "sell" the party line and make it acceptable to the people.

Today, "politically correct" it is a phrase used to describe those who support the liberal agenda. The truth is sometimes liberals do throw slogans around and "conservatives" respond with their own slogans, one of which is the slur "politically correct." Perhaps in this conference we can practice some critical thinking and avoid sloganizing on either side.

There is an irony of history related to the present controversy concerning academic freedom and academic discipline: we are currently commemorating the 200th anniversary of the Bill of Rights. The fundamental Western values of free inquiry and free speech are presently under examination. One urgent question is whether in 1991 we have university leadership strong enough to maintain academic standards and also protect intellectual freedom. Another urgent question is whether the professors are capable of self discipline. Toward what future are the professors ushering the way this time around?

Nearly half a century has passed since the death camps of Nazi Germany were liberated. As since that time the years have passed, those most deeply involved in the study of the Holocaust have become increasingly aware that not only the pathological event must be studied but also the implications for the present and future must be drawn. We not only tell the brute facts of the Holocaust; we also claim to point out its lessons.

As people of the campus we are confronted by the Holocaust in painful ways. The more we examine the Holocaust the more we see how university leadership failed the people. And we see how the products of the modern university, the alumni of the great universities of the Weimar Republic, the graduates of an institution once referred to as *universitas fidelium*, ("fellowship of the faithful") served an evil cause and even initiated evil programs. The professors operated the great engines that turned out thousands of competent technicians whose morals, ethics and commitment to human life were not a notable part of the record. These were modern men - of the university, of science, of high technology. They were governed by the premise that whatever *could* be done - *would* be done.

Professionals did more than cooperate with the Reich. Architects, engineers and chemists did the research required to build the Death Camps and make them efficient. University professors of philosophy, history and biology did the necessary theorizing to make Nazism appear legitimate. They revised biological theory to justify human breeding camps, enslavement and mass murder. Attorneys found legal precedents to justify monstrous crimes. Professionals like Josef Mengele, a man with two doctorates (a Ph.D and an MD) who performed diabolical experiments on helpless human guinea pigs, symbolizes the learned form human evil can take in modern society.

Mengele and professionals like him were not the products of Nazi-run universities, but of universities widely regarded as among the best in the world. It was the pre-Nazi university of the 1920s that failed to infuse ethics and humanity into their graduates, that instead produced masses of technically competent barbarians.

The question for those concerned with peace and justice, with the dignity and integrity of the human person, is this: What have we learned from this watershed event in Western Civilization? Are our modern universities in 1991 doing a better job in preparing doctors, lawyers, business executives, scientists, theologians and teachers with a more sensitized understanding of the value of the human person, with a deeper commitment to life? Do our skilled scientists and nuclear physicists have a commitment to maintain the highest level of morals and ethics, a commitment to social justice, that equals their devotion to technical proficiency?

In seeking some of these answers relating to the modern university of 1991, I turned to a recent best seller, a book written by the Dean of the Faculty of Arts and Sciences of Harvard University: *The University: An Owner's Manual*. Dean Henry Rosovsky in his book reviews the mores and mission of America's colleges and universities. He directs a special message to each of its "owners." Among these "owners" he includes students and their families, alumni, faculty, donors and trustees.

In discussing the role of the university and academic governance, Dean Rosovsky takes the view that only limited subjects are of concern to university administrators and professors; namely, "what do we teach, whom do we admit, how do we select professors, how do we govern ourselves and determine tenure procedures......" These Dean Rosovsky considers the fundamental issues. He goes on to declare that these are "for universities, the true, difficult, and timeless questions. They never go away." He is clearly able - in his manual - to segregate his moral and ethical accents from his responsibilities as a citizen.

Rosovsky says he does not believe that education can solve the problems of social justice or rectify "social ills." He relegates issues of general "social justice" to the category of "external relations" (community relations), which he does not think to be a major concern to the university "owners." The impingement of social issues on the university, he states, lie within the jurisdiction of the college presidents. Too many of us, he states, tend to confuse good education with good character. "The relation between character and education is weak." Finally, he concludes, "the university can produce new knowledge, teach professional skills, and the liberal arts. We cannot alone eradicate racism, poverty, the use of drugs." He does however spend a bit of printed space on faculty relations with students (including sexual harassment), strongly advising faculty and administrators how to stay out of trouble. We cannot, he says, "be a paradise island in a sea of discontent."

Thus, according to the Dean of Arts and Sciences at Harvard University, "we train students in the state of the art while attempting with all energy to change the frontiers of that state." His perspective, as winsome as it is in some respects, is introspective, insular and clannish. In sum, the Dean of Harvard College today takes the same position as the German intellectuals before Hitler came to power, namely that the university itself and its professors are *above politics*. The modern university is *not* above politics and never has been. The modern university has a very definite role in relation to matters of social responsibility. It created the structures of western civilization and advanced industrial society. It also created the Holocaust and the war machines which propelled both sides in the recent War of the Persian Gulf. Until the rise of the modern university the dominant elements were - in something called "Christendom" - invested in the clergy. Not so today. Even the stealth bomber, even chemical weapons and nuclear fission, are products of the modern university.

In attempting to understand Nazism, to explain Hitler's rise to power, to measure the responsibility of a literate people for the devastation wrought by the German Third Reich, we continue to ask, "How was it possible?"

It would be easy for us to understand if Germany had been a nation of ignorant, superstitious, illiterate savages. But with a nation where learning and culture were so greatly acclaimed, it seems beyond comprehension how people could have stood by and watched their country slide into a killing program of such magnitude.

Many people want to think Nazism was an outbreak of irrationality. On the contrary: the tragedy is that the programs of the Third Reich expressed rational purposes, however perverse. The killing centers were, like their inventors, products of what had been for generations one of the best systems in the world for training and honing the life of the mind. Himmler was always proud of the high percentage of Ph.d's in his officer corps. He warned his men against yielding to the human touch, praising the *eiskalt* quality of a cold-blooded and "objective" performance of their task. Out of the 14 department heads that Reinhard Heydrich gathered at the Wannsee Conference (January, 1942) to plan an efficient operation of the "Final Solution," eleven had doctorates. It is fair to say that without the cooperation of the educated professional elites the Nazi regime could not have gained power, ruled the Continent for a time, and threatened the entire western world.

Thinking themselves to be "above politics," the German professors created an environment within the universities that promoted conformity, passivity and a contempt for democratic political action. At the same time they opened the minds and hearts of their students to the nationalism and romanticism that flowed into Nazism.

Some historians have sought to explain Nazism by the economic depression, by a psychological predisposition to submission to authority on the part of the German nation, or by the power vacuum created by the Kaiser's abdication. While all of these factors are relevant, one must keep in mind two major negatives pointed out by Professor Franklin Littell in his book *The Crucifixion of the Jews* (1975). Littell demonstrates the failure of the church leadership to take a strong stand against Nazi idolatry, a capitulation that permitted the killing machine to function.

To this "credibility crisis of Christianity" was added a second: the moral failure of the modern university, with the resulting "credibility crisis" for higher learning and its chief representatives. The credibility crisis of Christianity is of course a problem for Christians. The credibility crisis of the modern university is something which calls for the attention of Christians, Jews and all others of conscience.

Dr. Alice Gallin, during her doctoral study at Catholic University, also illuminates the latter theme, the "credibility crisis of the modern university." She has added to the mounting evidence indicting the German professors as facilitators of the emergence of the Third Reich.

We have stressed the German crisis, but all of Europe was affected. As early as 1926, writing in France, Julien Benda pointed out in *The Treason of the Intellectuals* that the professors were betraying their calling. Benda thought the intellectuals should maintain truth against transitory fads and keep to the high standards of civilized society. Instead, he warned, the intellectuals of the 20th century had lost their moorings and were in tow to political and economic forces. He details in his book how the educated elite abandoned cultural leadership in the West, allowing an atmosphere of ethical and intellectual relativism to justify their retreat into their own professional concerns.

During the height of American concern over the role of the university in public policy in the late 1960's, Benda's book was reissued here in popular form (1969) in New York. Examination of Weimar Germany

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was being used to explore Post-World War II America. The topic still torments us.

The historical study of pre-Nazi universities in Germany has continued to be a major theme for those re-thinking out value systems. Immediately following World War II, in 1946 under the imprint of the Yiddish Scientific Institute (YIVO), Max Weinrich pointed out in *Hitler's Professors: The Part of Scholarship in Germany's Crimes Against The Jewish People,* how the intellectuals had made themselves technicians rather than persons of wisdom. They accommodated to the spirit of the times and the demands of the Nazi movement. Professor Weinrich dealt in specifics, including the evil actions of certain named professors, among them Nobel Laureates.

Almost twenty years after Weinrich, George Mosse also conducted a study of the intellectual problems and failures that allowed such cooperation between university leadership and genocide: *The Crisis of German Ideology: The Intellectual Origins of the Third Reich.*

I earlier mentioned Alice Gallin's recently published study, *Midwives to Nazism: University Professors in Weimar Germany, 1925-1933.* She investigates the role of the professors in preparing the way for the Nazi Third Reich, likening their function to that of a mid-wife.

The midwife, with her special skills and training, facilitates the birth of a child and assists the parents at the crucial moment when the new being is ushered into the world. The midwife, of course, never is held responsible for the conception nor for how the child turns out later in life.

Alan Beyerchen showed how this same procedure worked with scientists: *Scientists Under Hitler* (New Haven, Yale University Press, 1977). Beyerchen showed that the vast majority of scientists were neither pro-Nazi nor anti-Nazi: they simply wanted to be allowed to practice their trade undisturbed, "above politics." The few who opposed the regime resigned - for example Einstein, Franck, Haber and Stern. Their resignations served the Nazi purpose of removing all opponents.

G. W. Blackburn showed that while the Nazis were not particularly interested in academic course content, they were involved in a massive re-education effort to control the minds of the youth of the New Germany. Teachers caved in to simplified heroic legends and all-or-nothing comparisons. Marxism and Christianity were both presented as enemies - ideological and spiritual - and the past was manipulated to support Nazi racial theories. (*Education in the Third Reich,* Albany, S.U.N.Y. Press, 1984). Blackburn built on an earlier work by Werner Richter (*Re-Educating Germany,* University of Chicago Press, 1945). Richter detailed the collapse of the education system. He showed that the Nazis were easily able to manipulate teachers because the teachers in the common schools were trained solely as technicians, with the emphasis on methods rather than cultural content. They were pleased to have their position enhanced, to the disadvantage of the university elites whom they envied. In *The German Phoenix* (1960), Franklin Littell shows how the post war re-education of all of the German professions was invariably a matter of restoring the balance of ethical and cultural content over against mere technical competence.

Robert Lifton's *The Nazi Doctors: Medical Killings and the Psychology of Genocide* (New York, Basic Books, 1986) depicts the psychological power of the accouterments of science and medicine in creating a submission to sterility and uniformity, thus providing authoritative support for genocide. New research done in Germany by Benno Mueller-Hill presents the same process at work in pre-Nazi and Nazi Psychiatry.

These studies of the ways in which various professions failed to stop the Nazi regime and then served it loyally all spotlight the conditions in the modern university and the collapse of professional ethics. The professors turned their backs on the social contract theory and other Western understandings of the relationship between a people and its government. The academics joined the masses in approving a notion of *Volkstum* (race, nationality, peoplehood) that preceded and transcended the state, an idea rooted not in geographic or political boundaries, not in constitutions but in blood, soil and *Volk*.

Most German professors believed that academia and politics could be divorced. Yet they represented a powerful political factor, whether they recognized it or not. Their retention of nationalistic and monarchical views and their failure to support the republic opened the way to the Nazi alternative.

A clear example of this is evident in the report of an interview with Albert Speer in his home in Heidelberg, after he had served 20 years in Spandau prison. In reflecting upon his actions during the Third Reich, Speer makes it amazingly clear how as an educated man he was able to compartmentalize his mind.

At Nuremberg, he took "full responsibility" for crimes against the Jews. Yet it remains evident that the German university that trained him failed to provide its student with the ability to think critically and to ask the proper questions in the political sphere. We will not even hint at any effort to form a fully integrated human being - committed to the soul as well as the mind.

The university as such, disloyal to republican principles but not vigorously formative of persons of ethical and professional discipline, could not produce resistance to Nazism. There was one bright incident in the record of the universities during the Hitler period, but it came not from the professors—but from students. Hans and Sophie Scholl formed the White Rose and took their stand against Nazism from lessons learned from their parents, not from qualities learned from their professors.

German professors clung to outmoded patterns of thought and action. They perpetuated myths of Volk that undermined liberty and pluralism. They never understood that professors represent a powerful political factor. Like Albert Speer, they never fully understood the role they played in bringing the Third Reich into being. Unlike Speer, most of them never admitted their complicity, even in retrospect.

Into the vacuum that the old time professors left there rushed in the young activists who believed that the university should be an adjunct to the party and its program.

The lessons of the Nazi period have taught us that the university must serve as a model. The university *is not* above politics and it is unable to escape modern society and its problems. It must serve as a model of higher ethics and of higher morality. Just as children need role models so does society need a role model. The university cannot preach justice and democracy unless it practices those virtues within its own ranks. It may provide a campus forum for public policy. But the most effective method of teaching within the modern university is through its actions.

The modern university has a clear and definite responsibility to confront the Holocaust - the bitter fruit of its perversion and the corruption of its elites - and to provide a worthy model. Regardless of what the school catalogs say about the institution's devotion to values, republican principles and democratic politics, regardless of what the professors and administrators say about "objective" scholarship, most of the universities today in America are doing what the modern university has always done: produce technicians for the market place.

The role of the university should be a model of democratic self discipline and to maintain the integrity of its mission in the society. Further it is the role of the professors to attend to the responsible exercise of liberty and to the cultivation of critical thinking rather than submit to the mouthing of slogans. This must be done while maintaining respect for the dignity and integrity of the human person.

Most of all the university must walk the line and find a way to be morally and ethically relevant without allowing it to succumb to manipulation from the outside.

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MATHEMATICAL INVESTIGATIONS: A COURSE IN CRITICAL THINKING

Gail Kaplan

How do we encourage our students to develop the ability to think critically? How can the discipline of mathematics be used to seduce our students into developing creative thinking skills? What can we do to lessen the anxiety that often lives in the hearts and souls of our students?

This article will focus on classroom strategies used in a course for nonmath majors that encourages students not only to enjoy mathematics but also to learn how to think mathematically. Mathematical Investigations, according to the catalog, is a course whose objective is "for students to acquire skill in executing the processes involved in investigating objects and ideas of mathematical interest." In reality, the course is an exercise in the nature of critical thinking in the discipline of mathematics.

What does success mean for a liberal arts mathematics course? First and foremost, it is necessary to recognize the primary goals of such a class. We need to keep in mind that we are not aiming to reproduce mathematicians. Rather, we want to instill an appreciation and enjoyment of mathematics. Our students need to learn how to think, to think critically, to think creatively, to think mathematically. Since the heart of mathematics is the discovery process we need active participation. Discovery is not a spectator sport! As the semester progresses the student is expected to gain independence in investigating mathematical questions and leading discussions on these investigations.

Our desires are admirable but how do we accomplish such lofty goals? Perhaps the first step is to recognize the psychological world many of our students inhabit. For the majority of these students even the word mathematics itself is scary. Perhaps we should rename the course as "Math for Poets!" so that the nonmath major feels more comfortable. Class time is most effectively used by having the students actively participating. This generally translates into using class activities that are based on group work. Although one individual working alone may quickly reach an intolerable level of frustration, two students working together helps to relieve the tension. They laugh at each other's mistakes. Often they can see what is wrong with another student's idea more readily than they can see problems with their own work. The group work is advantageous for the talented, the average, and the poor student. The students find it far easier to ask "stupid questions" when they are working in the nonthreatening atmosphere of a small group.

Most students who take a mathematics course at this level are there to fulfill a distribution requirement. Hopefully, the fun nature of the course will inspire the students to expend a reasonable effort. Students like to have a text, so we use Thinking Mathematically by John Mason with Leone Burton and Kaye Stacey. This is a delightful book on how to think mathematically. It explores problems in detail and then generalizes about the techniques that are used.

On the first day of class we discuss the course requirements. The students are expected to attend all classes. Course grades are based on class participation, hour exams, and written assignments. There is a liberal rewrite policy so that even the weakest students can do well in the writing portion of the course. Throughout the semester there are six or seven short papers. This helps reinforce the ideas that mathematics is not just numbers. Mathematical ideas need to be expressed well in written form so that they can be shared. A significant side benefit of writing requirement is that the students must learn to use word processing. For the student, the written assignments generally present a twofold challenge. First, the student must develop the ability to express mathematical ideas on paper. Secondly, the student must develop the ability to create solutions on their own and explain them on paper. Several of the written assignments are based on problems that have already been solved in class. For these assignments the student can focus on the writing. The explanations should make both the problem and the solution clear to a nonmathematics major who is not in the class. The students are constantly reminded that solving a problem includes not only finding the "answer" to the stated question, but also generalizing the question and finding the general solution. The written work is returned rapidly with a written evaluation that pinpoints the areas that need improvement. The paper is evaluated in five basic areas: 1. the statement of original problem, 2. the accuracy and justification of the solution to original problem, 3. the statement of the general problem, 4. the accuracy and justification of the solution to the general problem, and 5. the style and quality of the exposition. Each student is encouraged to discuss the paper with the instructor and complete a revision of the work. The policy on revision encourages quality work, but it is hard on the instructor. In one class the semester started with an unlimited rewrite policy, but by midterm this was restricted due to the quantity of rewrites in this class. It seemed that the students were only making slight improvements to the papers before handing them in again. When the number of rewrites was restricted, the degree of improvement on each rewrite rose dramatically. A side benefit of the group work in class, is that the instructor can often meet with students individually during class. Since many students do not seem to be able to find the time to come to office hours, this provides the opportunity for one on one instruction. It is particularly effective to discuss the papers with the students before they revise their work.

Hour exams and the writing assignments are partners in this course. The papers provide an unpressured, untimed forum for work. The hour exams provide an in class opportunity for the student to apply the thinking skills that are developing from the problems being explored in class and at home. Generally, the problems are similar to ones we have done in class or have been assigned for homework. The questions require the student to apply the solutions they already know to a slightly altered situation. In class an important distinction is made between an answer and a solution. An answer is the appropriate response to the specific question asked, but a solution includes the justification for the answer as well as the generalization of the problem and the resolution of the general problem.

The goal of this course is for the student to learn to explore a problem in the same manner as a mathematician, not for the students to learn any particular mathematical fact. This means that the student must think logically. The study of logic is implemented by having the students play the games of WFF N'PROOF. This set of games was developed almost thirty years ago by Layman Allen, a law professor at Yale University. After the students have completed the set of games, they have covered about half of the material in a standard symbolic logic course at the college level. The games also help the students appreciate the rigor of mathematical proof.

Mathematical Investigations is an exercise in fun for many students. It is often the first time that mathematics is explored as potpourri of games and brain teasers. Hopefully, the thought processes that are used in this exploration transcend the boundary of any specific discipline.

Dr. Kaplan's main research interests revolve around the use of critical thinking in the classroom. She has presented workshops on critical thinking techniques across the country for audiences ranging from children as young as six to university faculty.

WHOSE WRITING IS IT, ANYWAY?: WHAT BUSINESS WRITING STUDENTS CHOOSE TO LEARN AND THEIR TEACHERS CHOOSE TO TEACH

Philip Vassallo

Introduction: Business Writing and Educational Inputs

Researchers in rhetorical theory continue to focus on the need to help their students communicate successfully in situations they confront every day (Johnson, 1990; Tobin, 1991; Vassallo, 1990, 1991). From this literature, business writing teachers can conclude that it is not enough to have their students read the textbook, write memo, letter, and report assignments, and discuss current events reviewed in the business section of *The New York Times*, *The Wall Street Journal*, or *Nation's Business*, among other sources. They should address the on-the-job problems with which their students are presently struggling through group discussion, individual conferences, and writing and research assignments. The fact that many students come to the business writing class with a wealth of work experience and a need to refine their job-specific writing skills has not been overlooked. Odell and Goswami (1985) and Sides, ed. (1989) have collected volumes on technical writing in nonacademic settings for teaching professionals, offering insights into worlds with which they might otherwise be unfamiliar. Many of the scholarly journals for technical writers and teachers, like the *Journal of Business and Technical Communication*, *Business Education Forum*, *Journal of Education for Business*, and *Technical Writing Teacher*, are now standard reading for many teachers and researchers who previously limited their professional reading to publications like *English Journal*, *College Composition and Communication*, *Journal of Teaching Writing*, and *Written Communication*. Major textbook publishers print new editions of business writing manuals each year. Business and technical writing college level courses are as much a part of the English Department's offerings as is freshman composition. The question persists, however, to what extent within the constraints of cost-effectiveness and practicality should the course mirror the business environment? The answer to this question—perhaps the question itself—impacts on the selection of course format, content, and materials. More significantly, it raises other provocative questions related to the ideas of teacher authority and student expertise.

Educational Inputs and Foundations of Inquiry

Odden (1990) suggests that assessment of any educational program must include analysis of its observable elements, namely its inputs, processes, and outputs. For the purposes of this discussion, the *inputs* are the materials, teacher quality, and student background introduced to the program. *Processes* refers to the program setting, program content, and teaching quality, all of which will contribute to the learning experience. The *outputs* are the measurable changes in student achievement, participation, and attitudes and aspirations as a result of attending the course.

In a comprehensive study of Habermas's work in social theory, Ewert contrasts critical theory from the empirical and interpretive traditions by noting:

> Whereas empirical and interpretive social sciences describe the world as it is, critical theory tries to understand why the social world is the way it is and, more importantly, through a process of critique, strives to know how it should be (Ewert, 1991, 346).

In his meditation on social inquiry, Bernstein suggests how the three theories might work together, concluding:

> When we work through any of these moments we discover how the others are implicated. An adequate social and political theory must be empirical, interpretive, and critical (235).

It is from this perspective that I will attempt to evaluate three essays about educational inputs, relating their ideas to my own questions about teaching business communication students. My purpose is not to devise a tidy, irrefutable formula by which teachers can evaluate the educational inputs influencing their business writing class. Nor is it to bash articles that I have found instructive and inspirational. Rather I hope to describe several considerations which I believe should stand within the boundaries of an analysis of educational inputs by reviewing what these recent articles have had to say about teaching materials, teacher quality, and student background. In my analysis I will introduce quantitative and qualitative data from my own experience as an adjunct writing instructor over the past three years at Middlesex County College to recommend that the students' background be closely scrutinized before committing the class to the constraints of an inflexible syllabus and assignment schedule.

The Computer as a Class Material

The computer has had such a dramatic impact on writing classes, mine included, that I sometimes forget it is an educational material to be used, not an educational process. Hawisher and Selfe (1991) engage in a critical argument about the use of computers in the composition class. They state:

> As editors of a journal devoted to studies in computers and composition, we are most often sent glowing reports that fail to reconcile the differences between a visionary image of technology—what we want computers to do—and our own firsthand observations of how computers are being used in classrooms around the country (57).

Computer-assisted writing class instructors responding to a survey designed by the authors preferred using computers for several reasons, the most prominent of which were: (1) students spent considerably more time writing, (2) more peer teaching occurred, and (3) the class became more student-centered. In a study of ten computer writing classes, the authors found that a great deal more writing does in fact take place, but usually at the expense of exchanges between student and teacher that could enhance student writing performance and self-actualization. The authors conclude:

> While containing valuable accounts of electronic writing classes, this conversation fails to provide us with a critical perspective on the problematic aspects of computer use and thus with a full understanding of how the use of technology can affect the social, political, and educational environments within which we teach (64).

It seems, however, that before such an understanding can occur, the role of the computer in the student's life must also be considered. Of the 57 students I have taught in four computer-assisted classes, all but five had previous experience with computers. More than half of the 187 students I have taught in the past three years own a computer, and many more plan on purchasing one in the near future. Over 90 percent have computers at their jobs, and over 75 percent have to use a computer for writing purposes at least occasionally. While my own writing over the past three years has been almost exclusively on a computer, I have had more than a handful of students whose level of technological mastery was far greater than mine.

The environment in which my students work and learn is a technological one, one in which much communication was done electronically (via telephone, radio, and television) long before we began using computers. The social, political, and educational aspects of the environment, however, cannot be identified merely by pointing to the existence of the technology within it. These social sciences are studies of human action in particular situations and settings, and writing teachers should understand those situations and settings in which their students act. But the use of the computer in the classroom can only help to satisfy the *practical* needs of students, especially those who use computers every day at work, or soon will. To discount the overwhelming presence of the technology is to widen the gap which Bernstein says exists "between the idea of such a critical theory of society and its concrete practical realization" (225). While Hawisher and Selfe do not advocate the removal of computers from the writing class, their cautions about computer instruction and conferencing fail to address the practical applications of the technology, at least from my students' perspective.

Increasingly, computers are used in college writing classes, criticism notwithstanding. A major concern about this was voiced by McPherson, who wrote:

> Community colleges... face the possibility of becoming increasingly dominated by the attitudes and preferences of the business and technology firms in their area, of more and more becoming mere apprenticeship programs for the companies who want workers trained in the skills their businesses find useful (147).

It is difficult to determine, however, whether computer literacy is what companies demand or what the employee-student demands. Most of my students already use the computer as their major mode of writing. Many of them come to school hoping to learn word processing skills. They see their supervisors at work and their professors using computers. Among the most frequently and fully enrolled courses in adult education programs are those involving computer use.

Many valid questions persist about how best to use the computer as a classroom material. Should it be used only for writing, or should it also be used as the medium for teacher-student conferencing? The latter would best be answered by asking whether computer conferencing adds to the possibility of discussion and the quality of the discussion from both the student's and teacher's viewpoint, and if it improves the student's achievement in and attitude about writing. In the case of my own class, where the average number of students is only fifteen, computer conferencing is unnecessary. Where some writers and their editors or students and their teachers are engaged in regular communication via modems, the additional writing necessary to establish a computer "rapport" can by itself help improve the student writer's achievement and attitude.

Teacher Quality

Stratton (1991) neatly categorizes technical writing courses into five varieties: technical essay writing, technicians' writing, technical students' writing, service technical writing, and professional technical writing (60). He sees "more students enrolled in these courses and the prospect of fewer and fewer teachers for these courses" (59). To meet this growing need, he proposes qualification standards for teaching the courses. The three categories of qualification he sees are education, work experience, and demonstrated proficiency. He prefaces his discussion of these categories by writing,

> I suppose the most highly qualified people for teaching technical writing would be those with Ph.D. degrees in Technical Communication, five to ten years' experience as professional technical writers or editors, and a healthy string of books, articles, and technical documents written and published (60).

He suggests that this hierarchy of five technical writing courses should be matched to a hierarchy of five levels of qualification standards. At the lowest level, the teacher of the technical writing essay course should have: (1) five years teaching experience, (2) a "demonstrated proficiency" as a writer, and, most of all, "desire" (62). On the highest level, the teacher of the professional technical writing course should have: "outstanding demonstrated proficiency with both technical documents and scholarly research articles or books; extensive on-the-job professional writing and editing experience; primary educational qualifications—a Ph.D. in Technical Communications or a Ph.D. in a related field plus a solid science/technology background" (63). With these descriptions Stratton exposes judgements that "reflect deep ideological biases and secrete controversial value positions" (Bernstein 228). On the lower end of his proposed qualification standards, any department chair would have a subjective opinion of both a teacher's demonstrated proficiency and desire. At Middlesex, where the two lowest level courses are available, whose desire is greater: a part-time adjunct who writes thousands of pages of documents for private companies annually, or a full-time professor contributing 50 pages of carefully self-promoted scholarly research in national professional journals?

On the highest level of qualifications, questions would arise regarding terms like "outstanding proficiency." Although Stratton states a specific number of published pages annually as a guideline, he relies only on these quantitative terms. Publishing, all professional writers know, is about knowing how and where to get one's work in print, and not about "outstanding proficiency." For instance, many writers make a practice of selling two articles that are minor variations of each other.

In his call "to begin the debate" about teaching qualifications, the author leaves his readers in a morass of subjectivity that solves no problems but recreates old questions which can only be answered when those in power (chairs of departments and qualifying committees) say they are.

The debate about what qualities make a good teacher will rage eternally. Most people entering the debate will agree with Stratton that a strong mix of education, teaching experience, and subject matter experience contributes immeasurably to teacher quality. Is this to say, then, that starting teachers who do not have strength in one of these three areas cannot be expected to do quality work as teachers? If not, then what is to be said of the highly educated and prolific writer who has never taught? Or the highly educated teacher who only occasionally writes? How should I, an MS recipient, a writer with ten years newsletter writing experience with over two dozen published articles, and author of technical manuals and corporate brochures, and seven years part-time teaching experience, be compared to a colleague who recently returned to the workforce after maternity leave with an MA, little writing experience, and three years full-time, highly-praised teaching experience? Discussion of these qualifications will trigger even more discussions on the *value* of my writing experience, the quality of my written work compared to my colleague's, and the perceptions about the equity of our experiences, since my colleague chose to raise her children during a time that I was cultivating my writing career. More importantly, if teachers are to be the judge of student achievement, should students take some role in judging teacher quality? Until more research is done on how students perceive their teachers as extenders of knowledge and facilitators of learning situations, enough cannot be said about what a teacher needs to teach students.

Student Background

In an unusual study, Sloan (1990) cleverly challenges empirical studies on the variety of errors in the writing of college freshman by showing that "professional writers, too, violate rules of correctness" (299). He examines 20 essays totaling 9,374 words by 20 established writers published in newspapers and periodicals with 20 college freshman essays totaling 9,392 words. He uses a specific grammar textbook as a guide to search for errors in these 40 essays. While the distribution of errors varied significantly, he found a remarkably similar number of total errors (192 by students to 171 by professionals). Misspellings was the area of greatest frequency of errors for the students (there were 38), and triteness was the greatest problem found in the professional essays (there were 30 instances).

Sloan says, "I do not pretend that my study is anywhere near definitive . . . I regard the study as suggestive—and, I hope, provocative" (301). But comparing the two groups is suspect for at least four reasons. First, the professionals are among the leaders in their field (e.g., Russell Baker, Ellen Goodman, Lance Morrow) while the students are not leaders among freshman writers, therefore the two groups approach their tasks from different levels of standing within their respective communities. Second, errors in excessive verbiage and triteness are to be found in the eye of the beholder (to use a trite term), no matter how effective the grammar book being used by the evaluator. Another reviewer would not find as many errors, or perhaps would find more errors, in triteness because it is a subjective judgement in which experience and interest bear significant weight. Third, professional writers have experience writing about specific topics of interest, while the college writers were working on their tenth assigned essay. There is reason to believe that topic selection affects the quality of mechanics in the student's writing (Tobin; Vassallo 1990; White). Fourth, claiming that professional writers are prone to errors in, say, spelling and punctuation, simply by reviewing their published manuscripts is invalid, for it is, in fact, their editor and typesetter who are being judged.

Sloan does make helpful practical suggestions to the teaching professional, such as "let students select their own topics . . . have students research topics before writing about them . . . let students write at their own pace" (307), but these points do not necessarily spring forth from his research. Before considering comparisons between people who get paid to write and people who are writing for a course (or, as is the case at Middlesex, who write because it is an occasional or frequent, but not primary, job responsibility), the researcher should question whether both groups in fact are engaging in the same process. Each produces a product of processed words, but forms them with different tools, for different readers, and for different reasons. Further, the researcher should question whether he can measure writing errors from the viewpoint of what Bernstein refers to as "disinterested observer." A teacher reading this essay in the hope of finding a method to determine how well a student writes will emerge from it with new questions about the different ways writing *is*.

Many of my students have said during self-introductions at the beginning of the semester that they see the business communications course as a means of attaining the necessary skills to make more money and gain higher positions at their jobs. Others, particularly those just returning to the workforce and the older students, have expressed a desire to keep up with the changing technology. What does a student's striving for corporate conformity tell a teacher planning a course outline? How much should the teacher look at students' writing ability at the beginning of the course, at a point when the syllabus has already been distributed to the class? If the teacher converts Sloan's study into action, he might be hesitant to place too great an emphasis on mechanical errors when evaluating students. Yet only teachers seem to have such a luxury. Publications editors will find such errors intolerable. Company communications directors will lose their jobs if they overlook errors in punctuation and spelling when sending printed material to the press. If this attitude prevails in my approach to students, how do I address the need of Yu-Shu, a brilliant Taiwanese chemist for a major pharmaceutical company whose only writing problems are glaring errors with tense, case, and number? Or, Wendy, whose only major flaw as a writer—and as an administrative assistant—is her admitted refusal to accept any criticism from male authority figures? How much can writing teachers, after all, expect the research to contribute not to what they know about student background, but to how they might approach a group of students who bring uniquely interesting but divergent backgrounds to the class with each new course?

Conclusion

As a full-time corporate employee, part-time teacher, and interested observer in my students' writing progress, I find that these works elicit many questions about the educational inputs affecting my business communications class. They also begin to explain what students choose to learn and what their teachers choose to teach.

So what do students choose to learn? My first impulse is to throw my hands out, lift my eyes up to the heavens, and blurt, "Who am I to say?" However, Bernstein does submit worthwhile advice in discussing the major stages or moments in restructuring inquiry when he notes,

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"We are coming to realize that human rationality cannot be limited to technical and instrumental reason" (233). Technical control of the writing class can never truly spawn emancipatory action among students. Knowing students choose to learn what they want to learn and understanding what this implies in light of the diverse experiences and vantage points they bring to class will guide a technical writing teacher in preparing the syllabus and course requirements.

What do teachers choose to teach? Obviously they teach what they know and what they want to teach, which is what they think their students need to learn. But if they teach without considering what their students choose to learn, they are not struggling for what Bernstein calls "an internal dialectic in the restructuring of social and political theory" (235). Once teachers form a paradigm that can move through the technical, practical, and emancipatory interests of inquiry, they can at the very least answer the question, "Whose writing is it, anyway?"

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GENERAL APPROACH

General Approaches

General approaches used by instructors in a variety of areas help to provide ideas and incentives to bring critical thinking alive in the classroom. In this section, approaches to teaching of and for critical thinking are presented. Each of the papers in this section presents an approach that can be adapted to a variety of disciplines, focusing more on the critical spirit than on specific content, more on classroom opportunities during which critical thinking can be nurtured than on particular techniques. Most, however, discuss the use of small group work within larger classroom groups. Some present critiques of approaches that others promote; others recommend approaches that are critiqued elswhere in this volume.

John Chaffee, in "Teaching Critical Thinking Across the Curriculum," contrasts two conceptions of the educational process; the coverage model, in which education involves the transfer of information from teacher to student, and the critical thinking model, through which "students should develop a progressive understanding of the process each discipline uses to generate and 'think' about information." Chaffee describes the Critical Thinking Program at LaGuardia Community College in New York City, which focuses on literacy, reasoning and problem solving, and critical attributes. He presents an argument for teaching separate critical thinking courses in conjunction with an approach which infuses critical thinking across the curriculum, and presents guidelines for integrating critical thinking within academic courses. He addresses the need for supportive, collaborative faculty development through which faculty themselves connect critical thinking to the academic content of the curriculum.

In "Critical Thinking and Cooperative Learning: Are They Compatible?" Bernard Davis explains the connection and differences among the two current educational movements. He cautions the reader to consider whether critical thinking might be stifled, rather than encouraged in some cooperative learning group situations, recommending setting up specific criteria for the processes within the cooperative learning group, and additional individual opportunities so that the individual voice does not become submerged in "group think." He suggests, too, the introduction of the intra-group role of "critical evaluator."

John von Eshenbach, in "Enhancing Critical Thinking Skills through Group Problem Solving, presents a group activity which requires interaction through the sharing of discrete information provided only to single individuals. Each member in a small group has different information; the problem solution requires the verbal contribution of the information held by individuals. The goal of this problem solving method helps students "develop intellectual, personal, and social skills" designed to help them prepare to participate effectively in a democratic society and a global community."

In "Classroom Climate for Critical Thinking," Lowell Gish describes the use of a small group model to encourage critical thinking. According to Gish, a heterogeneous classroom group of about 10 people provides an optimal climate for the inquiry learning he discusses. To achieve the climate of self-revelation that he believes is necessary for critical thinking to occur, "ice-breaker" activities are initiated that encourage the sharing of thoughts and feelings, opening the door for less guarded discussions as inquiry reveals more sensitive issues.

Stuart Hirschberg, in "Using the Toulmin Method of Argument to Teach Interdisciplinary Texts," discusses the Toulmin conceptual model as a framework for argumentation applicable across the disciplines. In this model, the relevance of claims are viewed "only in the context of the requirements of the larger fields within which the claims are advanced. Hirschberg describes the application of the Toulmin model to several fields, including history, law, and the sciences, and pointes out that each discipline or professional forum defines the evidence relevant to an argument presented in that field.

In "Should Fallacies Be Used to Teach Critical Thinking?" Carl Hahn suggests that fallacies not be used in the Informal Logic classroom. Among the reasons he cites in support of his argument are that many examples of faulty reasoning may be based on quite plausible arguments, and, in any case, memorizing and learning fallacies "teaches us little about the reasoning process and the problems occuring therein." Time spent on argument analysis rather than fallacies of reasoning is recommended.

In "Design, Implementation and Measurement of a Critical Thinking Course," Don Fawkes describes the development of such a course at his institution of higher learning. The course, according to Fawkes, is student-centered and interdisciplinary in design and content. Fawkes also discusses "students rights;" what students are entitled to demand from us as instructors.

Janevive Jean Mechanic, in "Critical Thinking and Decision Making," outlines a six step decision making process that she suggests teaching to college students for use in problem solving.

In "College Students' Perception of Critical Thinking Techniques Used by Professors," Barbara Richardson and George Rotter present an exploratory study of techniques used by professors to stimulate critical thinking, as reported by their students. According to the analysis of their data, these techniques include eliciting active student participation, encouraging independent thinking, and insuring the inclusion of alternative points of view.

TEACHING CRITICAL THINKING ACROSS THE CURRICULUM

John Chaffee

Background

Traditionally, a higher education is thought to produce literate and sophisticated thinkers, equipped with the knowledge and intellectual abilities needed to be informed citizens and successes in their chosen careers. Yet in a modern day re-enactment of the fabled Emperor's New Clothes, there is the growing awareness that many students are not leaving college clothed with the literacy, intellectual understanding and depth of insight supposedly symbolized by the degrees they have earned. The need for higher education to foster the development of these sophisticated thinking abilities in mainstream college courses is thus emerging as a problem of national significance. While academically successful students are typically able to absorb information, memorize facts, and learn fixed procedures, they often experience profound difficulties in thinking critically and creatively about what they are learning.

As a result, one of the most common complaints by faculty in college level courses — as well as by employers — is that students can't think effectively. When "thinking" is used in this way, it generally refers to a variety of complex, cognitive activities which include:

- solving problems
- generating and organizing ideas
- forming and applying concepts
- designing systematic plans of action
- constructing and evaluating arguments
- exploring issues from multiple perspectives
- applying knowledge to new situations
- critically evaluating the logic and validity of information
- developing evidence to support views
- carefully analyzing situations
- discussing subjects in an organized way.

Although these critical thinking abilities are clearly needed for academic study and career preparation, and despite the fact that teachers aspire to teach critical thinking as an educational ideal, critical thinking is rarely taught explicitly and systematically. For example, numerous empirical studies have revealed that teaching behavior in most high school and college classrooms tends to focus on the lowest cognitive level of knowledge, the dispensing of facts; while higher intellectual operations (such as application, analysis, synthesis, evaluation) are typically ignored. Recent examples of this research include Sirotnik (1983), Fischer and Grant (1983) and Nickerson (1988).

Let's briefly examine two contrasting models of teaching and learning: the "coverage" model and the "critical thinking" model.

The "Coverage" Model

There is a trend in colleges to view education as the transfer of information from teacher to student. Teachers operating under this model view their primary responsibility to be "covering" content rather than encouraging students to think about and critically evaluate what they are learning. This information transfer perspective has been described in various ways, ranging from the high-tech "data-bank" theory (students are blank disks waiting to be programmed) to the more earthy "feedlot" model (students are emaciated cattle who graduate when they reach a certain weight).

This kind of academic bulimia is encouraged and supported by the system as a whole. It is the way most faculty were educated, it provides clear criteria of student mastery which can be easily evaluated, and it serves to define the structure of curricula and the rigor of courses. Under this model, teachers present complex bodies of information through readings and lectures, while students develop and refine the abilities needed to master large amounts of information and to represent this information on examinations. Faculty are thus viewed as the sources of knowledge and arbiters of correct answers, while students are seen as relatively passive receptacles into which knowledge is being poured. As a result, the information transfer model does not stimulate or assist students in developing the critical thinking skills and higher-order intellectual abilities that they will need in the world beyond our courses.

The "Critical Thinking" Model

In contrast to the coverage model, the critical thinking model purports that students should not merely master information, they should also develop a progressive understanding of the process each discipline uses to generate and "think" about information. From this perspective, instead of focusing on the presentation of the facts and theories of history, the role of faculty is to introduce students to the way a historian thinks about and perceives the world, a perspective which leads to the construction of historical information and analysis of the historical process. For example, a critical thinking approach in history will emphasize the intellectual skills used to evaluate the reliability and accuracy of eyewitnesses, of observation, and of sources of information in constructing our "knowledge" of historical events. When taught in this way, students come to realize that each discipline is not simply a repository of accumulated knowledge, but is instead a dynamic, creative thinking activity — a structure of concepts and methodologies used to organize experience, approach problems and give explanations. By learning to "think" in these different ways — historically, philosophically, scientifically, etc. — students learn new ways of viewing their world and developing their intellectual abilities.

Many faculty are concerned that if they use a critical thinking approach to teaching, their students will not acquire enough knowledge. However, faculty are not really forced to make a choice between knowledge and critical thinking. In fact, both educational aims are more effectively achieved when they are pursued together. When we are stimulated to actively think about a particular subject, we learn more effectively and our learning is more lasting because we have organized and constructed it ourselves. In contrast, when we are merely trying to passively absorb information structured by others, our retention often doesn't extend far beyond the end of the course final examination. The underlying aim of the critical thinking approach to education is to create independent learners who will share the responsibility for learning and continue on a life-long journey of exploration and discovery.

Critical Thinking at LaGuardia Community College

The Critical Thinking program at LaGuardia began ten years ago with the development of its keystone course, Critical Thought Skills, which was created to explore the cognitive process and help provide entering students with the higher-order thinking and literacy abilities needed for academic and career success. Fueled by two grants from The National Endowment For The Humanities, that initial seed has developed into an interdisciplinary program that involves over 800 students annually, taught by faculty from a wide variety of disciplines. The Critical Thought Skills course has three basic aims:

(1) Enhance and accelerate the development of students' reading, writing and speaking skills.

(2) Develop and refine students higher-order thinking, reasoning and problem-solving abilities.

(3) Encourage students to explore their basic attitudes towards their lives and larger social concerns, fostering qualities like maturity and responsibility.

The curriculum is reflected in my text, *Thinking Critically* (1991), which has grown out of the collaborative efforts of those involved in the program. Since the course is an elective, its growth to over 40 sections annually can be seen as one indication that the LaGuardia community believes that it makes a significant contribution to the lives of our students, as expressed in the following student quotation:

> "The words "critical thinking" will never leave my vocabulary because by learning how to organize my ideas, support my point of view with reasons and trying to solve my problems rationally, I have learned more effective ways of dealing with my life, my children and my schoolwork." Dolores Colon-Montalvo

Of course, any one course in critical thinking will have a limited impact on students modes of thought unless these same abilities are reinforced in other courses they take. At LaGuardia, our efforts to accomplish this goal of infusing critical thinking across the curriculum have been funded by four years of NEH support. The project is structured around teaching "pairs," in which a section of Critical Thought Skills is joined with another course selected from a variety of academic areas. Students enrolled in a course pairing have to take both courses, providing a vehicle for integrating the courses and reinforcing intellectual abilities. These course pairings, working in concert with weekly faculty meetings, give faculty the opportunity and guidance to redesign their courses and refine their teaching methodology with the aim of fostering critical thinking abilities.

Program Evaluation

The Critical Thinking Program has been subject to in-depth evaluation, detailed in the report "Critical Thinking at LaGuardia Community College" (1985), available by writing to LaGuardia. It has been characterized by The Educational Testing Service as "A mature educational program which has involved and succeeded with a wide spectrum of students," and evaluated by The National Endowment For The Humanities as "A very enlightened approach to undergraduate instruction." In general, the program appears to have succeeded in meeting its three primary objectives: *literacy, reasoning and problem-solving*, and *critical attitudes*.

(1) *Literacy*: Since language and thinking are such closely related, reciprocal and interactive processes, the LaGuardia program is designed to improve students' thinking abilities while simultaneously enhancing their language skills. The cumulative results of the program have revealed that students enrolled in CTS pairs have consistently demonstrated accelerated development of language skills as measured by standard Writing and Reading examinations. In fact, the students in these course pairings have nearly doubled the school-wide average on these standardized measures over the past seven years. In addition to improvements in students' grammatical and structural language skills, faculty also report that students are learning to use language with a depth, insight and sophistication unusual for students at this level, as they seek to utilize and express their evolving higher-order thinking abilities.

(2) *Reasoning and Problem-Solving*: Utilizing a variety of evaluation strategies, the major evaluator of the project, Dr. Garlie Forehand, Director of Research at ETS, concluded that the program fosters the development of students' thinking abilities at both general and specific levels. He states: "At the general level, teachers perceive more respect for the thinking process, more tendency to bring a "habit of thinking" to their classes. At the specific level, teachers reported instances of transfer of such skills as breaking problems into parts, classifying, organization of thought, asking questions, separating facts from

opinions, and assessing alternative points of view." (Chaffee, 1985) Students also recognized the development and transfer of thinking skills from Critical Thought Skills to other content courses, citing examples like breaking problems into parts in math, applying the concepts of perceiving to the concept of ethnocentrism in social science, transferring self-perception insights to oral communication, and so on. Since fundamental thinking abilities and critical attitudes work together and interact in complex ways, students do not learn them in a skill-by-skill fashion. Instead, concurring with developmental theory and faculty analyses, students in the program are undergoing a developmental process in which skills, attitudes and perceptions are progressively reorganized into new cognitive patterns. This leads to breakthrough or "aha" experiences as students discover new methods and abilities, revealed in student comments like: "It expands thinking — like a tool:" "Part of my brain awakened:" "It put a seed, a spark, in me."

(3) *Critical Attitudes*: One of the guiding principles of the Critical Thinking program is the belief that learning should take place in an experiential context, serving to stimulate qualities such as self-awareness, initiative and maturity. As Dr. Forehand notes, faculty reported that students displayed this sort of affective development by being more attentive, less likely to be absent, more quick to follow instructions, more serious about course work, better at asking questions, better at verbalizing, less afraid of thinking and expressing themselves, and evidencing increased self-confidence." One professor summed up: "Maybe maturity is the word." A mathematics professor, Dr. Elizabeth Spicer, observes: "The affective effects are unmistakable — students are not only less likely to 'give up,' perhaps on the basis of increased self-esteem, perhaps now that they possess thinking strategies and see themselves more as analytical thinkers. They also are willing to 'tax their brain,' perhaps because they are simply more accustomed to doing so." (Chaffee, 1985)

Critical Thinking Models: Teaching vs. Infusing

One of the current controversies in education is whether critical thinking skills should be taught directly in courses like LaGuardia's, or whether these skills should be developed as part of the regular curriculum by integrating them into the disciplines. Naturally the infusion of critical thinking across the curriculum is a necessary — and desirable — objective. College faculty can be guided to redesign their teaching approaches so that students reinforce critical thinking abilities while mastering course content. However, because of the complexity of the various disciplines and the amount of material expected to be covered as they are now construed, it is unrealistic to expect faculty to focus specifically on thinking processes while simultaneously teaching their disciplines.

As a consequence, just as the need for freshman composition courses has not been eliminated by the writing across the curriculum movement, so there is a need to teach cognitive abilities directly in the form of a critical thinking courses. Students by and large need a direct, in-depth opportunity to understand and systematically develop these sophisticated thinking abilities early in their academic careers so that they can use these abilities to successfully negotiate and appreciate the complexity of their disciplinary studies. Unless we focus on these thinking processes and abilities in a discrete course, students will not develop them to the fullest extent possible. Additional reasons include the following:

* Critical and creative thinking has evolved in recent years into a distinct field of study, a multidisciplinary initiative focused on the operation of the cognitive process and the design of strategies for improving the effectiveness of people's thinking abilities. The field has spawned numerous books and articles, research studies, evaluation instruments, conferences, professional societies, and advanced degree programs. As such, it is an appropriate subject for study in an academic course or courses.

* There is persuasive evidence that a well-designed, effectively taught course in Critical Thinking can accelerate the development of students' higher-order thinking and literacy abilities. Examples of this research include Chance (1986), Lochead & Clement (1979), Schoefeld (1987) and Chaffee (1985).

Of course, care must be taken in designing and teaching thinking skills courses. For example, these skills cannot be taught in isolation — they must be applied to a variety of contexts in order to facilitate transfer of these abilities to life situations and academic course work. In addition, the proper intellectual abilities must be taught in a way which fosters active lasting learning.

Guidelines For Integrating Critical Thinking

Although many college faculty would agree with the general aims of the critical thinking model, difficulties often arise when translating these general aims into specific strategies and activities. There is a very large and rapidly expanding literature on critical thinking and intellectual development, and in this section I have tried to synthesize some of the major themes in this literature to serve as guidelines in reconceptualizing courses in order to enhance students' critical thinking abilities.

(1) *Articulate the critical thinking aims for your course:* The course objectives for academic courses are typically defined in terms of the content to be covered or behavioral skills to be mastered and this emphasis is expressed in the course structure and evaluative measures. Fostering critical thinking entails specifying the thinking and conceptual abilities students are expected to develop in various aspects of the course as well as the course as a whole; once identified, faculty are then in a position to design activities and employ teaching strategies which foster the development of these abilities.

(2) *Stimulate active learning:* Active learning lies at the heart of effective, lasting education. Strategies which stimulate an active discovery approach to learning include interactive teaching which encourages student questioning and participation; collaborative group work based on peer analysis and evaluation; student-led discussions which explore key concepts dialogically; projects that stimulate students to apply the knowledge they are gaining to develop and test hypotheses, generalize to new situations and evaluate the reasoning being presented; having students articulate their thinking/reasoning and receive feedback in order to encourage awareness of their cognitive processes. These and other approaches encourage students to become actively involved in constructing their own understanding and sharing the responsibility for their learning.

(3) *Encourage well-supported conclusions:* Everybody has beliefs. What distinguishes sophisticated thinkers is that their conclusions are informed, supported by reasons and evidence. In much of college study, there is an inordinate emphasis on the "correct answer," embodied, for example, in the widespread use of objective tests. The fact is that the reasoning process one uses to reach conclusions is often more interesting than the conclusions themselves, and it is the effectiveness of this reasoning process which often helps determine our career and life success.

(4) *Encourage perspective-taking:* All individuals are involved in constructing their understanding of the world as they actively select, organize and interpret their experience in order to decide what to believe, feel and do. All aspects of this interactive process are shaped by our individualized "spectacles" — values, interests, biases, predispositions — that influence what we perceive, how we process information and how we decide to act. Critical thinking involves becoming aware of our "spectacles" (and those of others) by examining various viewpoints on issues and situations. As a result, critical thinkers strive not only to support their views with reasons and evidence, but also think empathetically within points of view or frames of reference with which they disagree and understand the reasons that support these alternative perspectives. In order for students to develop these abilities, faculty must introduce multiple viewpoints, ambiguity, and disagreement among authorities. In addition, they must encourage students to be open to other views and new ideas and flexible enough to modify ideas in light of new information or better insights. For example, examining a variety of diverse historical accounts regarding the Vietnam War leads to an appreciation of the complexity of the issues and the reasons for conflicting interpretations.

(5) *Stimulate thinking and language use at all cognitive levels:* Benjamin Bloom (1977) identified a variety of ways people organize and interpret information (Bloom's Taxonomy) ranging from relatively simple levels (knowledge, comprehension) to more complex levels (application,

analysis, synthesis, evaluation). As noted earlier, research shows that most secondary school and college teaching focuses on the simpler cognitive levels, knowledge and comprehension. However, if students are to develop more sophisticated higher-order thinking abilities, they must be challenged with activities, questions and teaching approaches which stimulate various levels of cognitive functioning.

(6) *Promote Critical Literacy:* The development of our thinking abilities is closely tied to the development of our language abilities — and vice versa. This is due to the interwoven and reciprocal relations between thinking and language. Although colleges have traditionally been committed to the goal of developing articulate and literate thinkers, writers, speakers and readers, a review of typical college courses and textbooks reveals an absence of critical literacy. Many examinations are objective, giving students little opportunity to express their thinking in any systematic and developed fashion. Much of the reading they are required to do has as its main goal the transfer of information, not the critical evaluation of the ideas being presented. And many of the classes are cast primarily in a lecture format, reinforcing the notion that students are passive receptacles into which information is transmitted, not thinkers who can question, reflect and exchange ideas with others. If students are to develop these sophisticated language/thinking abilities, they must have consistent opportunities to complete substantive writing assignments, critically evaluate challenging readings and discuss ideas thoughtfully and systematically with other members of the class.

(7) *Build from students' experience:* Effective learning involves relating what students are learning to their own experience, building systematically from their concrete familiar contexts to more abstract, conceptual understandings. One of the key insights of modern cognitive psychology is the fact that we create explanations and solve problems in ways that are consistent with our ways of thinking, and unless instruction is somehow "matched" to the student's way of making meaning out of reality, the students will learn little. If we merely try to transfer our knowledge and insights, oblivious to the students' contexts and ways of thinking, then much of their "learning" will be rote, involving memorization of key facts and manipulating bits of information that have no coherent or lasting meaning for them. A more effective approach is to enable students to gradually expand their frames of reference, building on what they know by systematically integrating new information into their frameworks of meaning. For example, if we are teaching students strategies for problem-solving, we might begin by having them solve problems from their own experience before moving on to more abstract, less personalized contexts. This approach gives them the opportunity to internalize the problem-solving methodology that is being developed as they begin thinking like problem solvers. Once internalized, this way of thinking becomes an ongoing part of the way that students make sense of the world and equips them to move progressively to more abstract applications.

Teaching Critical Thinking Through Professional Development

In the final analysis, students cannot rise any higher than the people who are there to teach and inspire them. In order for students to develop their critical and creative thinking abilities, they must be taught by faculty who are themselves critical and creative thinkers who embody and stimulate these qualities in every phase of their teaching. What is the best way to stimulate the professional development of faculty who are entrenched in very traditional modes of thinking and teaching? To begin, with, it is clear that we must pursue an organic model of professional growth in which faculty are active, creative participants in the process. Any attempt to externally apply rigid models or use a cookbook of thinking strategies will have little real impact on faculties' teaching or students' learning. The exact strategy for drawing faculty into a critical analysis of their teachings depends on the specific context, but there are key factors relevant to the success of such efforts, including the following:

(1) *A Curriculum:* The meaningful infusion of thinking abilities requires a curriculum structure as the centerpiece. Such a structure makes explicit the core of concepts and abilities which are to be taught, integrated and reinforced. It acts as a point of reference, a focus for collaboration, a benchmark for self-evaluation, and a vehicle for communication. Projects lacking such a structure tend to collapse into chaos and confusion. In the Critical Thinking program at LaGuardia Community College, my evolving text, *Thinking Critically* (1991), served as the unifying structure, implemented through the course pairings described earlier. At the same time, the perspective embodied in the text was enriched by the faculty participating in the project.

(2) *Faculty Collaboration:* Faculty in such projects must have the opportunity to build collaboration through regular meetings, a collaboration based on sharing and critically examining their teaching experiences and reflecting on the process they are engaged in. This sense of sharing intellectual tasks, providing mutual support, and seeing the success of one's efforts all contribute to experiences which are personally and professionally rewarding. At LaGuardia, faculty who were involved in the project met weekly, developed ongoing materials which reflected the implementation of their ideas, and concluded the experiences with an analytical report which examined and evaluated their experience. As Ernest Boyer remarks: "An important part of the working condition that enables one to expand his or her own thinking is learning in "seminar" fashion under careful scrutiny of peers...encounters that allow teachers to test what they believe and to examine some of their own tentative judgments about various teaching approaches."

(3) *Faculty Ownership:* It should be clear at the outset that the goal of such projects is for faculty to absorb a perspective on teaching and learning and then to translate this perspective into their teaching in creative ways. In short, we are asking them to "think critically" as they

reconceptualize the structure of their courses and enhance their teaching methodologies. For example, in the LaGuardia program, faculty from the same subject areas were able to reshape the same course in individually innovative — yet equally valid — ways which reflected each person's unique talents and creative ideas.

Teaching The Whole Student

In recent years there is the growing recognition that effective education must address the whole student: the writer, not just the writing; the thinker, not just the thoughts. In order for students to develop the self-insight and motivation required for meaningful intellectual development, they must be encouraged to relate what they are experiencing to their lives — to their goals, their values, their self-concepts.

The Harvard educator William Perry has provided an articulate analysis of students' personal and intellectual growth (1970). He distinguishes a number of "stages" which students pass through — coherent interpretative frameworks through which students give meaning to their educational experience. This odyssey begins in what he terms the "Garden of Eden," in which the instructor is perceived as absolute authority, the source of truth and arbiter of correct answers. The journey continues through a relativistic phase of uncertainty in which all views are considered equally valid, and culminates with what we might term a "critical epistemology." In this stage, knowledge is seen as contextual, not absolute. Some ways of viewing the world are superior to others, but evaluation judgments are always made within a context and must be properly supported by appropriate reasons and evidence. From this vantage point, knowledge is seen as a human construction, an ongoing process of exploration and discovery which involves personal commitment and responsibility.

Teaching the whole student thus involves knitting together critical thinking abilities with the fabric of students' experience, pursuing the expectation that the abilities students learn in this fashion will become a part of who they are — how they perceive their world, how they experience themselves and others, and how they understand the contexts within which their choices and decisions are made. This view is based on the conviction that thinking skills are best taught through a process of synthesis, giving students the means to make sense of themselves and the world in which they live.

By seeking to foster the meaningful development of our students's intellectual abilities, we are seeking to equip them with the tools they will need to construct a stairway to their dreams. It is difficult to conceive of a more worthy educational enterprise.

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CRITICAL THINKING AND COOPERATIVE LEARNING, ARE THEY COMPATIBLE?

Bernard Davis

The movement to incorporate critical thinking in the public school curriculum has been growing rapidly during the last two decades. During the same period the movement to replace simultaneous instruction with cooperative learning has been growing as fast or faster. The success of either of these movements will profoundly change what is done in our schools. While there are several educators who embrace both movements and combine cooperative learning and critical thinking in proposals for educational change (cf. Johnson and Johnson, 1979; Jacobs, 1990; Windrin, 1990) the changes aimed at by the two movements are different and affect separate aspects of education.

Critical thinking aims, for the most part, at changes in the curriculum. Critical thinking is seen as a neglected curricular goal, an area to be added to what is now taught. Cooperative learning, on the other hand, foresees a change in the primary method of instruction.

Today in North America simultaneous instruction is nearly ubiquitous. This method, based on experiments conducted by Johann Heinrich Pestalozzi from 1799 to 1825, has, in just over one century, swept away and replaced the recitation class which preceded it. It was being used as the primary method of instruction in some cities in North America as early as the 1840's. The revolution was finished after World War II, as the last one room school houses were eliminated in favour of bussing children to schools big enough for simultaneous instruction to be effectively practiced.

While the method of one teacher instructing students engaged in simultaneous individual work was invented less than two hundred years ago, we are now so used to a classroom full of children, each working individually at the same task while being instructed by a single teacher, that we think this arrangement is obvious and natural. Cooperative learning, if it succeeds, will transmogrify this, marginalizing simultaneous instruction to the same extent that simultaneous instruction has marginalized the sequenced tutorials of the recitation class. In most of todays schools special help at lunch time or after school is all that is left of what used to be the school day's primary activity.

In cooperative learning, the class, the unit with which the teacher primarily interacts in simultaneous instruction, is broken down into several small groups. These groups work together at school tasks. Instead of being primarily a member of a class being instructed by a teacher, the student is primarily a member of a group which is instructed by materials and each other. Rather than providing direct instruction, the teacher interacts with the several groups and provides the materials and the structure which make cooperative learning possible.

There is a lot of structure in a cooperative learning classroom. Group members are often assigned specific roles within the group, such as recorder, spokesperson, or participation monitor, and structured regroupings are common. The grading structure reflects the new arrangement, usually incorporating group marks or individual marks which include a portion based on group performance. The student's role vis-à-vis other students is completely changed. No longer primarily an individual, working independently or competing with other members of the class, the student is primarily a member of a group, a group to which the student has responsibilities, a group which, in return, has responsibility for each of its members.

In this new environment the goal structure of students is profoundly altered. No longer are students' seeking success independently of the success of classmates, as would be appropriate in the recitation class or the simultaneous instruction class using criterion referenced grading and mastery learning. Nor are students seeking success at the expense of the success of classmates, as would be appropriate in the simultaneous instruction class using norm referenced grading. Instead, students must seek the success of the other members of their learning group if they themselves are to succeed. The success of the group becomes profoundly important.

As yet in cooperative learning theory this interdependence usually extends only to members of the students' own group. Cooperative learning schemes often involve intergroup cooperation, but intergroup competition is also tolerated, as is the independent operating of groups.

There has been a great deal of research done on the effectiveness of cooperative learning. Overwhelmingly, cooperative learning has been found to enhance achievement (Johnson, Maruyana, Johnson, Nelson & Skon, 1981). The gains are greatest for the students who would be in lower third of the class under simultaneous instruction, but it has been found that the learning of those in the middle and upper thirds is also enhanced. Cooperative learning has also been found to enhance students' appreciation of their fellow students (Johnson, Johnson & Maruyana, 1983), a feature of special interest to educators in an era of mainstreaming. The North American fascination with the presumed economic effects of Japanese education has further enhanced interest in cooperative learning. The Japanese use groups extensively in their schools. Their pattern of grouping to some extent overlaps the group structures of cooperative learning.

This, then, is where the cooperative learning movement stands, where stands the critical thinking movement? Critical thinking at this moment is a growing movement but not a unified one. Despite definitions of critical thinking that overlap extensively, there are wide discrepancies in the emphasis different critical thinkers put on different critical thinking activities and different critical thinking outcomes. Despite their acceptance of similar definitions of critical thinking, I find four major groupings, with clear differences in emphasis.

In the informal logic group, Robert Ennis defines critical thinking as "reasonable reflective thinking that is focused on deciding what to believe or do" (Ennis, 1987). But, Ennis's list of skills and dispositions includes 12 separate categories of logical abilities, including 22 fallacies the student should be able to recognize and name.

In the skeptical group, James Lett refers to the essential skills of critical thinking, bemoans the fact that they are not generally taught in public schools, and identifies the resulting problem as students who "do not know how to draw reasonable conclusions from the evidence" (Lett, 1990). But Lett shrugs off errors in deductive reasoning, suggesting the method of counter-example is sufficient as a detection technique. The critical thinking he proposes emphasizes the scientific examination of empirical claims. It is scientific investigation which he considers the central skill of the critical thinker, and skepticism which he considers the essential attitude.

A dialogical critical thinker, Richard Paul is on record as supporting the definition of critical thinking as "thinking which evaluates reasons, and brings thought and action in line with our evaluatio[illegible]ul, Binkey, Martin, Vetramo and Charbonneau, 1986). But Pa[illegible] insisting he recognizes the need for the deductive skills that Enn[illegible] denigrates the direct teaching of such skills as critical thinking in the 'weak sense' (Paul, 1990) and recommends, instead, inter-student argumentation on currently relevant philosophical issues and metacognitive examination of reasons offered and disputed (Paul, 1987).

Kevin O'Reilly, a practitioner whom I have selected as an example of discipline oriented critical thinkers, a group whose best known theorist is John McPeck, adopts Ennis's (1979) definition of critical thinking as "having good reasons for what you believe" (Ennis, 1979) and also accepts Beyers' characterization that critical thinking "involves careful, precise, persistent and objective analysis of any knowledge claim or belief in order to judge its validity and/or worth" (Beyer, 1985).

O'Reilly only insists that the distinction between content and critical thinking skills is false, and that critical thinking should be embedded in disciplines presently taught in school. But, the critical thinking activities O'Reilly recommends, turn out to be activities which come from his own discipline and teach thinking skills central to that discipline but peripheral to others.

While individual critical thinkers may incorporate more than one of these approaches in their own critical thinking programs, these divisions in the critical thinking movement are important, both because they divide the movement, and because the ways in which cooperative learning and the cooperative goal structure it implies will impact on the goals of critical thinking each group accepts are quite different. Those whose major focus is on skills, whether, like Ennis, general logical skills, or, like O'Reilly, subject specific thinking skills, will find only advantage in cooperative learning. The extensive empirical evidence that cooperative learning enhances skill learning for a wide range of skills gives good reason to believe that this enhancement will extend to the skills of critical thinking.

For the critical thinkers who focus on the attitudes and dispositions of critical thinking, however, the situation is much more complicated. Some of the attitudes and dispositions they want to produce can be expected to be enhanced by cooperative learning. Others may be endangered.

Several critical thinkers have proposed attitudes or dispositions which they believe should be the attitudes or dispositions characteristic of critical thinkers. Both Ennis and Paul provide lists of the dispositions or attitudes they consider important. Other writers recommend attitudes and dispositions in passing. In considering attitudes and dispositions that might be affected by the shift to cooperative learning I will look closely at four attitudes which are a composite of some of the attitudes and dispositions recommended by critical thinkers. These are attitudes which I think might be affected, positively or negatively, by the shift to cooperative learning. I will not discuss dispositions, such as curiosity or trying to keep well informed, which, so far as I can see, will not be significantly affected by the move to cooperative learning.

The first attitude or disposition I wish to consider is what Paul calls 'intellectual empathy' (Paul, 1990), the need to put oneself in the place of others and understand them, a disposition which Ennis cites as the need to be "sensitive to the feelings, level of knowledge, and degree of sophistication of others" (Ennis, 1987, p. 12). The second attitude or disposition which I believe might be affected by the shift to cooperative learning is what Paul names 'independence of mind' "the disposition and commitment to ...thinking for oneself" (Paul, 1990, p. 78).

The third attitude I want to examine is that one tolerate uncertainty (Wade & Travis, 1990) that one "withhold judgement when evidence and reasons are insufficient" and "take a position (and change a position) when the evidence and reasons are sufficient to do so" (Ennis, 1987, p.12). The fourth attitude or disposition I will consider is the requirement that evidence be evaluated without self-deception (Lett, 1990) that other positions be considered seriously (Ennis, 1987) that we treat all viewpoints alike giving a fair hearing to positions or viewpoints about which we have strong negative feelings (Paul, 1990).

Before examining these attitudes individually, I want to note some educators that have promoted cooperative learning as a road to critical thinking. Carl Smith remarks,

> ...this social process of interacting and collaborating to achieve a common purpose has a significant advantage for critical thinking. It forces ideas into a public forum. As is true in most discussions over issues, the cooperative group arrangement supplies alternative points of view and the need to sort out those views. Here the learner cannot be complacent because someone else is there to challenge his perspective. With guidance from the teacher, the students can locate additional information to aid in their decision making, and can realize that a variety of standards may be used to evaluate a point of view. Perhaps something more is needed than to say you heard it on television (Smith, 1990, p.25).

Smith realizes that cooperative learning does not guarantee critical thinking, but considers it almost, if not quite, a panacea nonetheless.

> Not all social learning requires critical thinking. When groups get together to help each other to prepare for a test or to identify the important events leading up to the War between the States, their interactions may be more concerned with how to make each member of the team successful, not how to make some decision about the artistry or cogency of a passage. But even then, the opportunity for making decisions among alternatives and deciding what to believe is enhanced by the interconnection of all these young minds" (Smith, 1990, p. 25).

I agree with Smith that cooperative learning might lead to more critical thinking than simultaneous instruction, nor am I advocating rejecting cooperative learning in favor of simultaneous instruction. Simultaneous instruction has done very poorly at fostering the attitudes, and even the skills, of critical thinking. Goodlad's researchers (Goodlad, 1984), though they visited a thousand American classrooms, could hardly find any trace of it. Rote learning and teacher talk aimed at rote learning dominated class after class, subject after subject.

I agree with Smith that cooperative learning provides student-student interaction. Also, cooperative learning requires a plethora of materials - no longer can ' the truth' be taken straight from the teacher's mouth. Thus cooperative learning solves one vexing problem that critical thinkers find with simultaneous instruction curricula - such a poverty of materials that there is nothing for students to think about. But that it is better for critical thinking than simultaneous instruction does not make cooperative learning a panacea which will automatically ensure critical thinking. If it is to do this many things must be done, and probably they must be done by those who promote critical thinking.

Now let's look at the four attitudes I listed. The goal of empathy and sensitivity for others will almost certainly be enhanced by the shift from simultaneous instruction to cooperative learning. The enhanced appreciation for others and enhanced acceptance of individual differences that results from cooperative learning has been well documented. I think we can safely conclude that we need not fear for this disposition. Cooperative learning can be expected to enhance it, and, unless poorly done, presents no threat to it. I wish there were similar research evidence on which to base conclusions about the impact of cooperative learning on other attitudinal goals of critical thinking.

Unfortunately, cooperative learning researchers have not considered these. Therefore for the rest of what I have to say I will have to rely on personal experience, a bit of philosophical argumentation, and a very suggestive historical study by Irving Janis (1972) of five foreign policy decisions made by groups of policy makers who worked in cooperative groups. These groups, although made up of adults holding important government appointments, had many of the characteristics considered ideal for cooperative learning groups, they were cohesive groups who liked and respected each other, and to a great extent these groups interacted in the way cooperative learning groups are supposed to interact, reaching consensus after in depth discussion. But, far from such an arrangement leading to critical thinking, Janis finds that in these groups,

> First, the group's discussions are limited to a few alternative courses of action (often only two) without a survey of the full range of alternatives. Second, the group fails to reexamine the course of action initially preferred by the majority of members from the standpoint of non-obvious risks and drawbacks that had not been considered when it was originally evaluated. Third, the members neglect courses of action initially evaluated as unsatisfactory by the majority of the group. Fourth, members make little or no attempt to obtain information from experts who can supply sound estimates of losses and gains to be expected from alternative courses of actions. Fifth, selective bias is shown in the way the group reacts to factual information and relevant judgments from experts, the mass media, and outside critics. The members show interest in facts and opinions that support their initially preferred policy and take up time in their meetings to discuss them, but they tend to ignore facts and opinions that do not support their initially preferred policy. Sixth, the members spend little time deliberating about how the chosen policy might be... derailed by the common accidents that happen to the best of well-laid plans (Janis, 1972, p.10).

Janis concludes:

> ...the central theme of my analysis can be summarized in this generalization, which I offer in the spirit of Parkinson's laws: *The more amiability and esprit de corps among the members of a policy-making in-group, the greater is the danger that independent critical thinking will be replaced by a groupthink.....* (Janis, 1972, p.13).

The disposition to think for oneself is a critical thinking attitude which may find in cooperative learning increased challenges. Paul considers the major barrier to independence of mind to be beliefs inherited from the thinkers' personal past and the influence of parents and other socially accepted authorities. A cooperative learning group might become a forum in which to explore alternatives to these beliefs. But it is equally likely that unquestioned assumptions will be further reinforced and strengthened.

The student eager to question authority is apt to find resistance within the group, a group the student is constrained to agree with by exercises which require the group to seek and report out a consensus. Membership in a cooperative group that works together and likes each other is a strong inhibitor of behavior that might disrupt the group. To question assumptions shared by the rest of the group is just such a potential disruption. A cooperative work group can inhibit dissent just as effectively as teachers or parents. If all the rest of a group accept a belief it is not easy for a single member to take the risk of introducing a discordant note.

A highly provocative case cited by Janis occurred in a therapy group committed to quitting smoking. All but one member (who had stopped smoking shortly before the meetings began) agreed that smoking was a serious addiction that could only be ended by a long process of gradual withdrawal. The holdout finally resumed smoking in order to retain his position in the cohesive group. (Janis, 1972, p.8f)

Cooperative learning can also negatively affect the disposition to match belief to evidence and reasons, to question what is poorly evidenced and accept the weight of evidence when it is sufficient. Working alone, one can question and either decide or withhold judgement at will. As part of a group this is possible when the group is divided or still arguing, but as consensus is reached individual students are likely to put doubts aside in order to get on with the work of the group. Janis states:

> ...to an outside observer, one of the most incomprehensible characteristics of a cohesive group that is sharing stereotypes and manifesting other symptoms of groupthink is the tenacity with which the members adhere to erroneous assumptions despite

> the mounting evidence to challenge them. (Janis, 1972, p. 63).

The division of labor common in cooperative learning groups can also inhibit matching assent to the evidence. To doubt what another concludes when that conclusion is within that student's area of responsibility can be seen as disloyalty to the group. Janis notes this as having been a serious problem in the group led by John Kennedy which planned the Bay of Pigs Invasion.

Similarly for the disposition of giving a fair hearing to positions which we severely dislike. Doing this as an individual is very difficult, giving a fair hearing to a position one's whole group dislikes may be even more difficult. Intersubjectivity is no guarantee of objectivity, rather it can do an excellent job of hiding lack of objectivity. Unless the group is so arranged and instructed that every position must be defended and argued, unpopular positions may be given very short shrift indeed.

As critical thinkers, what can we do to ensure that the shift to cooperative learning enhances these objectives of critical thinking, rather than interferes with them? One thing we should do is research the effects of cooperative learning as it is actually being done, to determine which arrangements promote and which thwart critical thinking attitudes. But if it is to be useful, our research must not use the standard method of cooperative learning researchers - comparison to simultaneous instruction. It is not a sufficient recommendation for a method that it is no worse, or even a little better than, a method we know to be a failure. We should also investigate and evaluate cooperative methods specifically directed at critical thinking goals, such as Johnson and Johnson's cooperative controversy (Johnson & Johnson, 1976).

Janis (Janis, 1972) has three suggestions for enhancing critical thinking in policy making groups that might well be adapted to cooperative learning:

1. "The leader of a policy-forming group should assign the role of critical evaluator to each member, encouraging the group to give high priority to airing objections and doubts" (Janis 1972, p.188).
While a teacher might encourage dissent in this way, general admonitions are likely to prove ineffective while effective methods might be disruptive to some of the other aims of cooperative learning. However ensuring that one assigned role in every group is that of the critical evaluator might serve to structure critical thinking into cooperative learning.

2. "The key leaders in an organization's hierarchy, when assigning a policy-planning mission to any group within their organization, should be impartial instead of stating preferences and expectations at the outset" (Janis, 1972, p. 188). This limitation on teacher expression of

bias is a suitable restriction for both cooperative learning and simultaneous instruction.

3. "The organization should routinely follow the administrative practice of setting up several independent policy-planning and evaluation groups to work on the same policy question, each carrying out its deliberations under a different leader" (Janis, 1972, p.188). If different groups meet on the same problem, and then work together in plenary session to discuss their different results, critical thinking will be enhanced.

I would also suggest that we should investigate cooperative learning structures which might partially insulate a susceptible individual from peer group pressure. We might provide such protection if we:

1) Ensure that every learner is a member of more than one learning group,
2) Incorporate individual as well as group research into the cooperative learning classroom,
3) Provide for individual reaction papers or other feedback to the teacher alone, separate from group feedback. The dissenter should know that one lone voice will still be heard.
4) Don't insist on total group consensus as the outcome of group deliberations, but rather allow some divergence of opinion to persist.
5) Avoid intergroup competition. Competition between groups is as much an enemy of honest critical thought as competition between individuals - it should be noted that intergroup competition is an important feature of the Japanese use of groups.
6) Consider reducing the influence of external motivators such as grades and certificates. Such motivators distract from the purpose of critical thinking - seek ye the truth and the truth shall get you a

B. External motivators, however, are already the subject of controversy within the cooperative learning fraternity (Slavin, 1991a and 1991b; Kahn, 1991a and 1991b; Graves, 1991; Schaps and Lewis, 1991). If critical thinkers decide to join the fray on this issue we will not be alone.

To conclude I should like to return to the question posed by the title of this paper, are critical thinking and cooperative learning compatible? The answer, simply, is yes, critical thinking and cooperative learning are compatible. But, whether these compatible educational movements will court and marry, or flirt for a while and then part forever is yet to be seen. Which will happen is very likely up to us.

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ENHANCING CRITICAL THINKING SKILLS THROUGH GROUP PROBLEM-SOLVING

John F. vonEschenbach

Introduction

In a 1988 report published by the United States Department of Education, it was stressed that the education of American students should develop citizens who can lead productive lives and contribute to society. Feldhusen and Treffinger (1977), contend that effective citizens in our complex society need to be good problem-solvers and good thinkers. In addition, several writers argue that the development of critical thinking abilities is a necessary condition for real learning to occur (Beyer, 1977; Brown, 1989; McPeck, 1981). Therefore, the educational process should be enabling students to acquire and utilize knowledge, to think critically, and to create new ideas. Every subject within a curriculum or educational program should incorporate the instructional goals and strategies for the development of a knowledgeable and critical thinker.

In addition to critical thinking, cooperative learning has generated a re-consideration in instructional methodology. Slavin (1990) contends that evidence supports the effectiveness of cooperative learning for enhancing academic achievement, improving intergroup relations, accepting mainstreamed students, and increasing self-esteem and positive attitudes toward school. The justification for including cooperative learning in elementary and secondary classrooms, in addition to undergraduate and graduate education courses, is found within one of the primary goals of education. That goal stresses the need for students to develop intellectual, personal, and social skills in order to participate effectively in a democratic society and a global community (National Council for the Social Studies, 1989). In essence, critical thinking citizens are more functional and better contributors to society when they can effectively interact and cooperate with each other.

Description of Critical Thinking and Cooperative Learning

Many philosophers and educators have proposed various definitions of critical thinking. Robert Ennis (1985) views critical thinking as a reflective and reasonable process that focuses on deciding what to do or believe. Matthew Lipman (1988) describes critical thinking as skillful and responsible thinking that facilitates good judgment because it "relies on criteria, is self-controlling, and is sensitive to context" (p. 39). Also, Richard Paul (1990) thinks that "critical thinking is disciplined, self-directed thinking which exemplifies the perfection of thinking appropriate to a particular mode or domain of thinking" (p. 33).

In addition to definitions, other descriptions of critical thinking characteristics and skills are helpful to understand further the process of critical thinking. Beyer (1985) presents 10 discrete critical thinking skills which are:

1. distinguishing between verifiable facts and value claims;
2. determining the reliability of a source;
3. determining the factual accuracy of a statement;
4. distinguishing relevant from irrelevant information, claims, or reasons;
5. detecting bias;
6. identifying unstated assumptions;
7. identifying ambiguous or equivocal claims or arguments;
8. recognizing logical inconsistencies or fallacies in a line of reasoning;
9. distinguishing between warranted or unwarranted claims; and
10. determining the strength of an argument.

In an edited collection of articles entitled "Teaching thinking skills: Theory and practice," Ennis (1987) delineates critical thinking abilities as the focusing of a question, analyzing arguments, asking questions of clarification, judging the credibility of a source, judging observation reports, judging deductions and inductions, making value judgments, defining terms, identifying assumptions, deciding on action, and interacting with others. According to Nickerson (1987), good thinkers use evidence impartially, distinguish between valid and invalid inferences, suspend judgment in absence of sufficient evidence, anticipate consequences of alternative actions, understand the degrees of belief, and listen carefully to other people's ideas.

In regards to defining or describing cooperative learning, Poirier (1970) uses the term "team learning" which involves a cooperative-competitive approach to learning. Slavin (1990) suggests that cooperative learning usually has students working together in four-member teams to master material initially presented by the teacher. Johnson and Johnson (1989) propose a similar description in that a cooperative learning format involves two to six students in a group with individually assigned tasks and material. In addition to this description, they identify other important elements of cooperative learning as positive interdependence among team members, opportunities for face-to-face interaction, individual accountability, interpersonal skill development, and student assessment or reflection of group process and function.

Group Problem-Solving Description and Rationale

Within these definitions and descriptions of critical thinking and cooperative learning, instructional strategies for the development of critical thinking and cooperative learning skills must be more comprehensive and challenging than just the traditional approach of classroom lectures. The design of the learning environment must engage students in thinking and reasoning processes through discussion

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and interaction. The lecture-based model of teaching does have some merit when knowledge is defined as the giving and getting of information. However, the lecture-based model of teaching often emphasizes rote memorization, and students are frequently put in a passive position where the instructor does most of the talking. The group problem-solving model engages students in verbal interaction. Each student within the group becomes an active participant and contributor because each member has discrete and necessary information for the solution to the problem. Therefore, it is imperative that the members in the group seek each other's input and participation. Hopefully, this nurtures a positive self-concept within learners. Also, the desire to solve the problem generates enthusiasm and stimulates the thinking processes.

The instructional format concerning the group problem-solving activity within this paper is as follows:

1. Different printed information is distributed to each member in a group that is not larger than five persons;
2. Students are instructed that the information can only be shared verbally and cannot be passed from student to student;
3. The pertinent critical thinking skills are identified for students' consideration. For example, identifying assumptions, separating relevant from irrelevant information, detecting factual and inferential information, and making deductions from the information could be some of the skills that the students are to develop;
4. Students are encouraged to use both verbal and visual modalities of learning as means for solving the problem; and
5. The students are also instructed that the goal of the activity is to be first in solving correctly the problem. In this manner, competition is generated among the groups, and cooperation is achieved within the groups.

A Group Problem-Solving Activity

Information Sheet One
Important Things to Remember

1. You can only read or tell the information to your group members.
2. You can NOT show or give your sheet to another member.
3. Your group members have all the information needed to solve the problem.
4. Some information is irrelevant.

THE PROBLEM TO SOLVE IS: IN WHAT SEQUENCE DID THE TIGERS HAVE THEIR FOURTH GRADE TEACHERS DURING THE FIRST FOUR PERIODS OF THE SCHOOL DAY.

Information Sheet Two
Sherwood Elementary School has two aides, four teachers, and four

instructional groups of children at the fourth grade level.
Only the fourth grade classes have names for the instructional groups.
Mr. Jones and Mr. Smith always work together during the third period within the fourth grade unit.
Mr. Jones dreams of becoming a principal at Sherwood Elementary School.

Information Sheet Three
All fourth grade teachers teach at the same time and exchange instructional groups at the end of each period.
Each fourth grade teacher has a favorite group. During the second period, each teacher has the group which he or she likes best.
Each fourth grade teacher gets to work with each of the different groups during the first four periods of the day.
Sherwood Elementary School has the strongest parent organization in the state of Alabama.

Information Sheet Four
Ms. Adams and Mr. Jones disagree about classroom management concerning the Bombers who seem to be the most disruptive group.
Mr. Dean prefers to teach the Champs over all the other groups.
The Champs have five gifted students in the class.
The team leader has taught at Sherwood Elementary School for five years which is the shortest period of time than any other teacher.

Information Sheet Five
The Dinosaurs have Mr. Smith for their teacher during the third period.
Mr. Dean and Ms. Adams could not agree on educational philosophy and would not work together during any of the class periods.
During the first period, the team leader taught the group that Mr. Harris best liked.
The instructional groups were homogeneously grouped.

Information Sheet Six
Ms. Whatley is the newly certified school counselor.
The team leader taught the Dinosaurs during the second period.
Mr. Harris taught the Bombers during the third period.
Of all the teachers, Ms. Silly was employed for the shortest period of time.
The principal of Sherwood Elementary School is the wife of Mr. Harris.

Conclusion

Within the educational process, it is logical to expect students to become effective economic, political, and social decision-makers. One should also expect the educational process to equip our future citizens with knowledge, attitudes, and skills in order to interact effectively and respond to others in a changing world. The advancements through science and technology necessitate a development and utilization of critical thinking abilities and cooperative living skills in order to acquire, interpret, and share the rapid expansion of information in a global community. Finally, it is equally crucial to expect our students to develop cooperative and social skills in order to be psychologically well-adjusted and respectful of others' dignity and welfare. Hopefully, students who are critical thinkers are competent in detecting racial, religious, and social biases and prejudices; have positive self-concepts; and can function as effective and participating decision-makers.

Finally, Beyer (1987) cautions that students do not develop these abilities on their own. The habit and process of critical thinking and cooperative learning does not just occur naturally throughout maturation. It must be taught in a systematically planned curriculum throughout all grade levels and academic areas. If we want our students to be intelligent and sensitive citizens, then we must endorse the necessity to teach critical thinking and cooperative learning as vital components within the entire educational process.

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BUILDING A CLASSROOM CLIMATE FOR CRITICAL THINKING

Lowell Gish

My first objective is to provide background information regarding my teaching strategies. The paper does not grow from either scientific research or a thorough analysis of the literature on the topic. My fundamental intent is to share some of my tentative findings for establishing a classroom climate conducive to critical thinking. Perhaps my offering is more personal than scholarly, but I now have enough grey hair to at least pose as an elder statesman distributing tidbits of wisdom.

Because my academic lineage is from John Dewey, I prefer the term "reflective thinking" over "critical thinking," but I will here use the terms interchangeably. Dewey (1910) described the essence of his beliefs on thinking with the following statement: "Thinking begins in what may fairly enough be called a *forked road* situation, a situation which is ambiguous, which presents a dilemma, which proposes alternatives. As long as our activity glides smoothly along from one thing to another, or as long as we permit our imagination to entertain fancies at pleasure, there is no call for reflection."

Most assuredly, I do *not* claim to have found a royal road to critical thought, for I often feel as much frustration as satisfaction with my teaching. I have not "arrived" as a facilitator of thought, but I take some comfort from realizing that uncertainty and doubt, for both teacher and students, are natural ingredients in the critical-thinking soup.

When I entered college teaching I employed a traditional professorial approach. In part, I attempted to follow the advice of an experienced college teacher who counseled that success is measured by the quantity of notes you can cause students to place in their notebooks. Also, I shudder with the recollection I frequently attempted to "snow" students with the breadth of my knowledge, with my arsenal of concepts from several fields.

Gradually, I moved toward more integrity and endeavored to model the educational philosophy I espoused. In the Dewey tradition, I held and hold a belief that teachers should promote problem-solving in order to help students "learn to learn."

My conviction is that a significant schism exists between those who come to the critical-thinking movement from philosophy and those more strongly influenced by psychology. The former seem to use formal logic as their launching pad, and the latter group promotes problem-solving as the highway to improved thinking skills. I am definitely in the problem-solving camp.

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My belief is that out in the world many more persons are effective users of "informal" logic, than the numbers who utilize formal logic. Although in using the term I risk opening the proverbial "can of worms," I believe that individuals are capable of growing in their abilities to utilize *intuition* to solve problems. Few of us, when confronted with an actual dilemma, develop an elaborate syllogism, but many become capable of blending rationality and intuition to make sound decisions. Most are capable of seeking evidence, building sound strategies, and acquiring confidence in their abilities to surmount obstacles.

Also, the approach that has evolved for me parallels some of the thinking of Ralph H. Johnson (1990), who supports the view that virtually all learning is "social" in nature. With some analysis we discover that many of our concepts and impressions of reality come while we are interacting with others. Also, I believe that as we develop an insight we frequently have, on some level, awareness that this new understanding will eventually be usable in working with others. In classrooms, as well as in the broader environment, we gain satisfaction and our thinking is stimulated while engaged in group efforts to generate strategies and solve problems.

For two decades I have endeavored to utilize inquiry or discovery teaching more consistently in my classes and have experimented with and engaged in unending efforts to refine my strategies. To base a course primarily on inquiry is to push against the current, for the "fill their notebooks with facts" school of schooling is strongly entrenched in higher education.

In my teaching I have adapted a model of inquiry teaching-learning presented by Byron Massialas and Jack Zevin (1967). They describe three variations of inquiry: Analytical, Discovery, and Examination of Values. Analytical lessons involve systematic investigation, are scientific in tone, and generally lead to a single solution that is more acceptable than others. Discovery lessons are more open-ended, are often linked with the arts, and lead students to employ brainstorming and hunches while searching for a variety of relatively creative solutions. Analytical lessons primarily require "convergent" thinking, while Discovery lessons are designed more to elicit "divergent" thought. Examination of Values lessons invite students to grapple with controversial problems with social and ethical dimensions and motivate students to probe for understanding as to how their personal values influence their choices.

This style of inquiry is closely related to the "case" method of instruction. A recent issue of the *Journal of Teacher Education* has as its theme, "Case Methods." In that issue Judith Shulman (1991, Sept.-Oct.) discusses techniques for developing cases.

My conviction is that several fundamental principles should guide us as we strive for an appropriate climate.

First, we must down-play our positions as authority figures. To minimize the hazard of intimidating students into meek compliance, we must struggle to level the playing field. Students will not lose their awareness of the power we hold and gaps in age and knowledge-levels, but we can reduce the mesmerizing affect of our authority. Neil Postman and Charles Weingartner (1969) emphasize the need for students to become good "crap detectors." We should go another step and allow them, no, *require* them, to become proficient at detecting *our* crap also. If we maintain the pose of lofty scholar, we remove this possibility, or at least force them to conceal their awareness of flaws in our thinking.

Humor is also a valuable tool in the struggle to find plusses that counteract the minuses associated with introducing critical thinking into the educational scene. Although I carry a large repertoire of jokes, I tell very few in class. At times, however, some event will remind me of a joke that seems relevant, and I will inflict it on the class. More often incongruous happenings in class lead me to improvise light comments. Self-deprecating observations help both to reduce the authority-gap and to promote a relaxed tone. Certainly, pitfalls exist, for the line between soft and harsh humor is often thin, and sarcasm seriously undermines efforts to attain our goal. Humor, as it relates to critical thinking, is a large and significant topic, and I must resist the temptation to pursue that subject further.

Although teachers have long focussed their prime attention on delivering ideas, those who serve as facilitators of inquiry lessons must place similar emphasis on *listening*. This skill requires much more effort and concentration than we commonly recognize. Teachers must not waiver in their efforts to extend their listening skills, which can be strengthened through study of findings of the Communications specialists. The role of listening is crucial, for the entire inquiry process must be significantly influenced by students' inputs. Students must know that the teacher is listening intently to their contributions or the sought-after climate will not be attained. Considerable practice is required to achieve a subtle balance; the facilitator must steer the boat, while allowing students also to have their hands on the tiller.

Possibly, the strongest need in the quest is to subdue some of our inner devils that could erode the undertaking. We must strive for a mind-set that will enhance the process. To avoid a mushrooming of ambivalence and lowering of our levels of confidence we must make a firm commitment to the goal, while remaining aware of the hazards that we face in the endeavor. Naturally, the psyche of the instructor is an important element of the climate.

That psyche, more than we often acknowledge, can become a battleground on which many different forces struggle for dominance. We all carry strong urges "to cover the material." When we become involved in deep analysis of issues, when we jointly investigate problems we must reflect deeply, but we do not focus as extensively or directly upon the subject matter. Much in the culture of education teaches us that unless we deliver the full load of ideas to students they will not acquire them. When we opt to promote critical thinking we transmit fewer ideas and may experience inner conflict, even guilt, because of the choice.

Critical thinking endeavors are promoted, in part, by situations that are ripe with uncertainty, ambiguity, and confusion. Stress and fear are natural consequences, and neither student nor teacher is able to stand comfortably aloof from these painful classroom elements. Richard Johnson (1990) states, "if they are to become critical thinkers, they must become comfortable with and be able to cope with cognitive stress; they must be able to carry larger loads than they are accustomed to when they enter. Hence you are in for static and frustration."

Johnson also quotes Don Marquis' admonition. "If you make people think they're thinking they'll love you. But if you really make them think, they'll hate you." This is an extreme conclusion, but at times the exaggeration seems only slight.

Not infrequently students experience anger that borders on rage, which comes in part because their various cages have been rattled. Most of the threat, however, is associated with grades. Surely if we are serious in promoting critical thinking we will evaluate, at least to a significant degree, the extent to which students *demonstrate* critical thought.

We are inconsistent if we emphasize critical thinking in class but give memory-level tests. Students learn quickly to attune their study to the type of test a teacher provides, and so we must develop tests that require thinking. This is essential, even though some students will inevitably cry "foul." Many have mastered the absorb-and-regurgitate procedure and see themselves as safely on their way toward graduation, possibly with a high GPA. Suddenly, as some see it, a teacher with a weird approach upends the entire system and sabotages them. The resulting panic is not an insignificant matter.

The "taxonomy of the cognitive domain," commonly attributed to Benjamin Bloom (1956) can serve as a valuable instrument in formulating test questions, as well as in developing problems for class. For a teacher to have as a target the promotion of higher-level thinking skills — analysis, synthesis, and evaluation — facilitates the generating of both questions and problems.

In short, a teacher who decides to follow the critical-thinking path must make a firm commitment that will help that traveler through some thorny briar patches. Possibly one must become virtually obsessed with the importance of the crusade.

Although we may unleash negative emotions in students, we are capable, as professionals of avoiding displays of negative reaction. We should draw on a conviction that many students will move on to increased confidence and enhanced thinking skills. Some will even come to treasure the "tough love" that was inflicted on them.

In relation to techniques my focus here will be on group dynamics, for I am convinced that groups are a crucial tool in the campaign. Subgroups within a class serve several purposes. As a group evolves that entity provides additional security for its members, and threat levels diminish. Members look forward to spending time together, and the social band becomes a "support group." Group participation, for virtually all, increases pleasure and reduces anguish associated with critical thinking.

During the past two decades findings of scholars within the field of Communications offer teachers numerous clues for making classroom climates more supportive of critical thinking. David W. and Frank P. Johnson (1987) provide a particularly helpful collection of strategies for productive group work.

In most traditional classrooms the collection of students who enter the door remains an "aggregate." To allow a class to become a group or for subgroups within a class to emerge requires considerable thought, time, and effort. Johnson and Johnson present a model of group development that includes seven stages and also describe a model by Tuckman that includes four stages: forming, storming, norming, and performing.

All of the models that I have encountered include a stage of conflict or rebellion. Understanding of group evolution improves a teacher's chances of dealing soundly with such tumult, which frequently should be viewed as normal and healthy, as an indication of progress. This awareness should help a teacher, even while experiencing some discomfort, to recognize that important breakthroughs are occurring.

Comprehension of group-development patterns should facilitate means to assist group members to grow in problem-solving capabilities. Also, a facilitator should learn to sense the appropriate times to "get out of the way" for the sake of group development.

Central to our set of goals is trust-building. Often students acquire a sense of trust in their teacher's goodwill and supportiveness before achieving this security with their peers. A teacher should help students to learn civility and mutual respect, even while they battle over ideas.

Groups can facilitate advances beyond pseudo-discussions. Commonly when teachers believe they are conducting a discussion little honest interaction actually takes place. Typically, a rather superficial byplay between the instructor and a quite small handful of class members occurs. A few students choose to placate the teacher and take turns making comments while holding their more meaningful cards close to the chest. They wish to avoid revealing much of themselves, for they lack sufficient trust in either the teacher or classmates. Intuitively they recognize that discussing issues in depth results in self-exposure, and few are courageous, or foolhardy, enough to take such risks in a standard classroom.

Many teachers rationalize regarding taking the actual steps necessary to promote critical thought. Some conclude that a class occurs too early in the day for good interaction. Or possibly the class comes too late in the day — or too soon after lunch. The most common barrier cited, however, is class size. My belief is that when we labor to nourish subgroups the handicap of class size is greatly diminished.

Considerable care should be given to placing individuals into the various soon-to-become groups. I try for highly heterogeneous collections of 8 to 11 persons. My goal is balance in gender and interests, and I try, when possible, to avoid placing members of the same Greek organization in a group. Sub-entities within a group commonly occur, but one should strive to reduce this tendency. Persons who have been closely associated prior to entering the class tend to cling together for security, rather than investing in group membership. Of course, heterogeneity also helps to promote diversity of thought. Another reason is that students may censor their contributions more thoroughly when persons they know well are present.

To promote group evolution we must invest some class time in allowing this to happen. We can use a variety of strategies, including ice-breaker activities, to facilitate the growth. One of my practices is to dismiss all the class except members of the one group. All are then given a pageful of adjectives and asked to mark 5 or 6 words that are particularly descriptive of them. By counting off each person pairs up with another student and the two interact regarding the words they have chosen. Almost without exception the duos become virtually transported in sharing thoughts and feelings. Although I do not listen I am regularly pleased by the nonverbal clues that suggest deep satisfaction in the communication. We then come back together and each person introduces her partner and summarizes the discussion about his adjectives. If the number is odd I pair up with one of the students and function in the same pattern as the others. If the number is even I wait until the others have introduced their partners and comment on my own adjectives.

In conjunction with the belief that critical-thinking activities result in self-revelation, exercises such as this are for the purpose of trust-building. Students find that sharing their personal feelings and attitudes can be more gratifying than terrifying. To me one of the few absolutes associated with climate-building is that the teacher must be open and self-revealing; otherwise, a basic contradiction may undermine the entire effort. Frequently, I delay sharing my views so that I won't inhibit the contributions of others, but in the last phases of an investigation I am willing to be open about my ideas.

Currently a colleague and I are team-teaching a course. During a session of hers she had students form groups of four and play a board game that related to concepts we were studying. I feared that college men and women would consider themselves too sophisticated to enter into the game with much verve, but most were soon down on the floor exhibiting joy in being involved. The students not only sharpened their understanding of the concepts, but the activity also propelled the climate and tone of the class in the desired direction.

My goal is to promote *cooperative* problem-solving within the groups, but this definitely does not require members to agree on solutions. Emphasizing cooperation over competition is, I am firmly convinced, a basic tenet of climate-building.

Commonly, I facilitate an inquiry lesson with one of the groups. I enter the circle with members of that group and other class members are asked to form a semi-circle around us. I remain in a position where I can maintain eye-contact with those in the group and with the other students. Members in the target group bear the main responsibility for seeking solutions to the problem, and my practice is to solicit participation from *each* member of the group. The ground rules that I use allow other class members to participate in the investigation, but primarily the monkey is on the back of members of the central group. With some regularity we experience a problem when so many persons on the periphery want to contribute that it becomes necessary to hold them off in order that members of the group may participate more fully. This, however, is a problem that I cherish.

Dealing with ambiguity is an essential ingredient of the reflective-thinking process, and we must accept degrees of confusion associated with our role. In some of my classes I call on students to lead inquiry lessons. Recently one of those students who was virtually incapacitated by uncertainties linked with planning her strategy declared she feared others in her group might not enjoy her lesson or would be unwilling to search for solutions to the problem she had in mind. I don't know that my declaration that we can never be certain of outcomes in such situations was very reassuring to her.

In several other ways I call on the subgroups to contribute. At times I ask a class to break up into their groups to discuss an issue and then drift from group to group to gain a feel regarding their progress. At these times I try to guard against making many contributions, for I have found that doing so tends to inhibit their discussions. Occasionally I will ask one of the groups to serve as a panel and discuss a topic before the remainder of the class. Also, groups have been asked to undertake an assortment of projects, such as conceptualizing an education program for the 21st century.

My present focus has possibly been too much on stress associated with promoting critical thought. Certainly, immense gratification often comes from the experiences also.

One night when I was suffering from insomnia I got up, watched television, and encountered a futuristic movie in which virtually all humanity had been destroyed. A small band of young persons was wandering through an empty city but somehow encountered a traffic light that was still operating. When a young lady started to walk against that light another member of the band stopped her. She asked why it mattered, and he replied, "Because the weight of civilization is riding on our shoulders." The young man did not, in that instance, use much critical thought, but I am convinced that we must become fully devoted to promoting reflective thought, for just possibly the weight of civilization *is* riding on our shoulders.

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USING THE TOULMIN METHOD OF ARGUMENT TO TEACH INTERDISCIPLINARY TEXTS

Stuart Hirschberg

Some of the most interesting and effective writing in various disciplines takes the form of arguments that seek to persuade a specific audience (colleagues, fellow researchers, or the general public) of the validity of a proposition or claim through logical reasoning supported by facts, examples, data, or other kinds of evidence.

Although arguments explore important issues and espouse specific theories, the forms in which arguments appear vary according to the style and format of the individual discipline. Evidence in different disciplines can appear in a variety of formats, including the interpretation of statistics, laws, precedents, or the citation of authorities. The means used in constructing arguments depend on the audience within the discipline being addressed, the nature of the thesis being processed, and the accepted methodology for that particular discipline.

The types of information sought and the methods employed within the domain of the sciences aim at providing an accurate, systematic, and comprehensive account of the world around us, as well as a framework within which new hypotheses can be put forward and evaluated.

Like general arguments, the structure of arguments within the disciplines requires a clear statement of a proposition or claim, grounds that are relevant to the claim and sufficient to support it, a warrant based on solid backing that guarantees the appropriateness and applicability of the grounds to support the claim in the case at hand. Appropriate qualifiers or possible exceptions to the claim must be stated as part of the argument.

We can appreciate the relevance of claims only in the context of the requirements of the larger fields within which the claims are advanced. That is, there are certain defining features and distinctive goals of each discipline that determine which items, data, or evidence will be seen as relevant to the claim. Training in different fields consists in learning what kinds of evidence is accepted as appropriate in supporting claims within that particular field (the following discussions applying the Toulmin model to a range of disciplines have been adapted from Stephen Toulmin, et al. *An Introduction to Reasoning*, 2nd Ed., Macmillan Publishing Co., 1984; future in-text citations refer to this source). In Toulmin's formulation, the terms used in his approach may be defined as follows:

Claim— the conclusion or result of an argument, that which the rest of the material is intended to prove.

Grounds—the statistics, observations, testimony, or other factual data being offered as evidence to support the claim.

Warrant—the generalization, principle, or other statement that connects the grounds to the claim— that warrants moving from the grounds to the claim.

Backing— the source or support for the warrant which shows the warrant is safe to rely upon in this particular argument

Qualifier—a word or phrase that expresses how reliable the arguer perceives the claim to be

Rebuttal—circumstances or exceptions that might invalidate the claim.

Different fields have different concepts of what constitutes evidence to be introduced to support a claim. Grounds, evidence, or data that is appropriate in a legal argument will be of a different kind and will be judged differently than evidence in a scientific argument or in an argument in the arts.

Arguing in History

Historians explain how the present has been influenced by the past by providing a clear account of the conditions in which societies have lived. The methods of inquiry used in history attempt to provide a clear picture of who, what, where, when and how events took place. Some historians go beyond these basic issues and offer interpretations as to why the events took place. Arguments in history often take the form of revising older interpretations or taking into account new information that forces a re-evaluation of previously held beliefs. For example, Kenneth M. Stampp, a distinguished American historian has investigated, in *The Peculiar Institution: Slavery in the Ante-Bellum South* (Alfred A. Knopf, 1956), the relationship between the southern plantation system and slavery. In contrast to previous historians (such as Ulrich B. Phillips, writing in *American Negro Slavery*, D. Appleton & Co.,1918) who claimed that slavery was part of the social structure of the plantation system, Stampp asserted that a shortage of labor and a desire to increase profits were the real reasons behind the phenomena of slave labor on southern plantations.

In one section "To Make Them Stand In Fear" from his book, Stampp uses a variety of source documents, including recorded testimony of slave owners in Mississippi, South Carolina, North Carolina, and Virginia, as well as quotations from the actual manuals written to advise plantation owners on the management of slaves to support his analysis of conditioning procedures used to instill fear and dependency in newly-arrived slaves. In outline form Stampp's argument appears as follows:

Grounds - "Discourses on the management of slaves" provided specific instructions on all phases of the "programming process." Stampp identifies five separate steps: (1) establishment of strict discipline modeled on army regulations, (2) implanting in the bondsman a consciousness of inferiority, (3) instilling a sense of awe at the master's enormous power, (4) persuading the bondsman to value the success of the master's enterprise, and (5) creating a habit of perfect dependence.

Warrant - The study of original source documents provides valuable new information with which to re-evaluate and revise previously held interpretations of events in history. (The warrant expresses the methodology underlying the concept of historical revisionism practiced by Stampp).

Claim - Contrary to historical interpretations that view slavery as an integral component of the plantation system, original source documents reveal a calculated effort on the part of slave owners to transform newly-arrived blacks into slaves who would be psychologically conditioned to control their own behavior because they believed that what was good for the plantation owners was good for them as well.

Legal Arguments

Features of legal arguments are determined by the purpose of the law which is to provide protection for individuals in society, and for society as a whole. As with other arguments, the process of legal reasoning depends on the interplay between evidence or grounds, and claims and warrants to produce the legal decision expressed as a claim. For example, the features of a regular legal argument can be seen in the following hypothetical case: a man whose name is Dan Webster petitions the court to have his name legally changed to "666." Dan Webster testifies that the number "666" has great personal meaning for him, but that the State Motor Vehicle Bureau would not agree to accept the name "666" without a legal name change. In analytical form, the legal argument would look like this:

Grounds - A man whose name is Dan Webster petitions the court to have his name legally changed to "666." Dan Webster testified that the number "666" had great personal meaning for him, but that the State Motor Vehicle Bureau would not agree to accept the name "666" without a legal name change.

Warrant - Laws governing name changes passed by the state where Dan Webster resides require names to be changed to ones comprised of letters.

Claim - Dan Webster should not be allowed to legally change his name to "666."

Qualifier or Exception - Unless Dan Webster wishes to change his name to a spelled out version of "Six Six Six."

In court, legal reasoning makes use of an adversarial procedure where two opposing parties present the strongest case they can assemble for their proposed claims. Each party tells its "story" or version of the truth and the court (judge or jury) decides which version is more credible (284). The court chooses between the two opposing versions rather than working out a negotiated settlement that would be acceptable to both parties. The adversary character of legal reasoning can be seen in other legal forums where arguments are heard such as in congressional hearings where individuals provide competing versions of the facts.

As the case of Dan Webster illustrates, evidence provides the basis or "grounds" by which arguments are supported. The examination of evidence is at the center of legal reasoning. Evidence is entered in the form of exhibits. Letters, documents, contracts, tape recordings, video tapes, and a wide range of physical evidence is then evaluated to see whose claim it best supports (302).

Evidence or "grounds" can also take the form of testimony of witnesses to be tested by cross-examination as well as the expert opinion by authorities (that is also subjected to cross-examination). Cross-examination is an important feature of legal reasoning as are rules governing what evidence the jury will or will not be allowed to hear (302). For example, evidence cannot be admitted from certain kinds of protected relationships (doctor-patient, lawyer-client, priest-parishioner, husband-wife). In other cases, the court must rule whether particular circumstantial or hearsay evidence is admissible.

As with other types of arguments, a range of warrants specific to the law, authorize a connection between the claim and the evidence (304). Some warrants justify the use of expert testimony (for example, taking the form of an assumption that the testimony of a person with extensive experience and expertise in a particular field, can be taken as authoritative). Other legal warrants justify the use of circumstantial, physical evidence to reach a conclusion. Still other warrants can take the form of particular cases to be used as precedents in reaching a decision on a current case (307).

In all disciplines a distinction is usually drawn between arguments that rely on laws, rules, procedures, accepted ways of thinking, formulae, and those arguments that challenge the very procedures or rules used in arriving at judgments. This latter kind of argument challenges the accepted methodology, the theoretical model upon which the discipline is based, whereas regular legal arguments simply apply the rules (308).

To see how "rule setting" decisions become precedents that lawyers can use in ordinary legal arguments, we might examine the legal reasoning underlying the historic 1954 Supreme Court ruling on segregation in public schools (Brown v. Board of Education of Topeka) The decision was written by Earl Warren, then Chief Justice of the Supreme Court. In outline form, Warren's decision on behalf of the

Court appears this way:

Grounds - Warren cites the results of psychological studies showing that segregated schools instill a sense of inferiority, retarded mental development and deprive the children of minority groups of equal educational opportunities.

Warrant - A crucial clause in the Fourteenth Amendment, namely "no state shall... deny to any person within its jurisdiction the equal protection of the laws," empowers the court to evaluate how well states manage the important function of education for citizens.

Claim - Warren concluded that "in the field of public education the doctrine of 'separate but equal' has no place." The Court ruled that separate educational facilities are inherently unequal and found that segregation in the public schools deprives children of minorities of the educational opportunities they should rightfully enjoy under the Fourteenth Amendment.

An argument like this that challenges the very interpretation of what the law is, is obviously of a different order than arguments that simply apply accepted rules or methodology. This Supreme Court decision served as a catalyst for the civil rights movement, bringing about a series of public demonstrations, marches, and sit-ins which, in conjunction with changes in the law, permanently altered existing social attitudes towards the acceptability of racial discrimination.

Arguing in the Sciences

The types of information sought and the methods employed within the domain of the sciences aim at providing an accurate, systematic and comprehensive account of the world around us as well as a framework within which new hypotheses can be put forward and evaluated (315).

The forums in which argumentation takes place in the sciences include professional meetings, refereed journals, and conferences. These public forums guarantee that all ideas will be tested to determine their underlying validity.

Scientists, even those on the losing side of an argument have a common interest in gaining a more accurate picture of the natural world, its origin, make-up and functioning (317). Thus, the putting forth and disputing of claims is not an end in itself as it is in the law, but a means to clarify and improve a picture of the world held by scientists.

The way science solves problems and generates new knowledge can be seen by examining procedures used by the biologists Arthur D. Hasler and James A. Larsen ("The Homing Salmon" *Scientific American*, August 1955) Their experiments solved the mystery of how salmon could find their way back to the exact streams where they were born from distances as great as 900 miles by pinpointing the role played by the salmon's olfactory sense.

Well-documented observations based on the recovery of "tagged" salmon in the streams where they were originally born had established that the "homing instinct" was a scientific problem worth investigating. For scientists, observation plays a crucial role in identifying mysterious phenomena or "anomolies" (319). The question as to how salmon remember their birthplace, and find their way back to the stream in which they were born sometimes from 800-900 miles away, is an enigma which has fascinated naturalists for many years.

Once observations show the existence of a problem needing explanation, scientists formulate a tentative explanation or hypothesis to account for this otherwise inexplicable event.

Scientists then design specific experiments to measure in objective and quantifiable form whether the hypothesis provides an adequate explanation of the phenomena. A scientific hypothesis, if true, should have both descriptive and predictive value. In Hasler and Larsen's experiment, half of a group of salmon were marked and deprived of their olfactory sense, while the other half were used as a control group. When all the salmon were released downstream, it was determined that the control group correctly returned as usual to the original stream whereas the "odor-blinded" fish migrated in random fashion "picking the wrong stream as often as the right one."

The way in which evidence or grounds, warrants and claims play a part in scientific problem-solving as a method of inquiring into the truth (as opposed to advocating a position as in the law) can be seen in the following outline:

Grounds - "From each of the two different branches of the Issaquah River in the state of Washington, we took a number of sexually ripe silver salmon which had come home to spawn. We then plugged with cotton the noses of half the fish in each group and placed all the salmon in the river below the fork to make the upstream run again. Most of the fish with unplugged noses swam back to the stream they had selected the first time. But the 'odor-blinded' fish migrated back in random fashion, picking the wrong stream as often as the right one."

Backing - The experience of scientists in developing systematic procedures for testing hypotheses that claim to account for otherwise inexplicable phenomena.

Warrant - The established procedures of scientific research state that the results of an experiment designed in such a way as to make it possible to isolate, control, and measure the role played by one key variable can be reliably depended upon to explain and predict a previously inexplicable phenomena.

Claim - (takes the form of a clear-cut working hypothesis for investigating the mystery of the homing salmon) "We can suppose that every little stream has its own characteristic odor, which stays the same year after year; that young salmon become conditioned to this odor before they go to sea; that they remember the odor as they grow to maturity, and that they are able to find it and follow it to its source when they come back upstream to spawn."

Qualifier or Exception - Unless the salmon's homing instincts are due to other causes such as salinity, water temperature, or the earth's magnetic field, etc.

By viewing the liberal arts, social sciences, and the sciences as separate "discourse communities," governed by different conventions, expectations, and standards about what constitutes acceptable reasoning, the Toulmin model makes it possible for teachers to handle the problem of teaching texts from different disciplines using a common framework. The increasing acceptance of this approach can be seen from the fact that in 1991, the University of Texas at Austin instituted a syllabus based on the Toulmin model for all students taking Freshman English, and adopted a Toulmin-based rhetoric, *Strategies of Argument*, by S. Hirshberg (Macmillan, 1990).

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SHOULD FALLACIES BE USED TO TEACH CRITICAL THINKING?

Carl R. Hahn

The subject of this paper is the teaching of introductory courses on informal logic or "critical thinking." These courses are taught in many different ways covering a broad spectrum of material which may or may not cover such things as symbolic logic, grammatical functions and definition types. But one thing which recurs time and time again in the curriculum is the ever-fluxuating list of "fallacies." There are some exceptions to this claim among the plethora of text books on the market—one of which I will discuss later—but for the most part, discussion of fallacies occupies anywhere from twenty to fifty percent of the average text.

My claim is that the use of fallacies is at best ineffective and at worst misleading in the teaching of critical thinking. (I should note that the phrase "use of fallacies" obviously does not mean instructors *invoking* fallacies, but using fallacies as examples of bad reasoning.) Most texts do spend at least some time on the basic guidelines of argument evaluation: the conclusion must be adequately supported by a sufficient set of believable, relevant premises. However, I believe that the overwhelming use of fallacies to teach these guidelines is not profitable. There are several related reasons.

The principal problem with fallacy teaching is that it does not really address the problems of reasoning which underlie the fallacies. We know that "guilt by association" and "straw man" are fallacies, but to memorize this and learn to recognize them teaches us little about the reasoning process and the problems occurring therein. With "guilt by association," for example, students learn a very specific rule that we ought not conclude something about person or object *x* on the grounds that person or object *x* is associated with some group, and we have good reason to draw this conclusion about the group. For example, if we know someone goes drinking regularly with a professed communist, this does not mean that that someone is himself communist. (Perhaps we could also name this one the CIA fallacy.) What we fail to focus on is that mere association is often insufficient grounds to reach the desired conclusion; association is often simply irrelevant.

Some authors do recognize this difficulty, for example, Trudy Govier, in *A Practical Study of Argument*. She admits that "Provided that you spot irrelevance, it does not matter so very much whether you can give it a label or not"[1] Yet she says this as part of an introduction to a fallacy section that is over twice as long as the initial discussion of relevance. And, predictably, it is the latter section that students come away remembering.

Another rather general problem with the concept of fallacies is that they tend to paint a very black and white picture of argumentation, without the shades of gray that dominate the world of philosophy. The 'original' (if I can call them that) fallacies were the deductive fallacies, e.g., affirming the consequent, and here the stark contrast was appropriate—an argument is either valid or invalid. Some fallacies still deserve the term, perhaps; circularity and begging the question are two examples. But most of the fallacies listed in informal logic text books are not of this sort. Yet students carry away the attitude—despite any urging to the contrary—that any opportunity to apply a fallacy label is enough to end an argument.

The fallacy of "hasty generalization" is a great example of this. The difference between a 'good' generalization and a 'bad' generalization is a vast expanse of 'iffy' ones. To even talk about a distinct fallacy of "hasty generalization" indicates to the student that there is a sharp line at which we can say "All these arguments are irredeemably bad and ought not be believed." And what with generalizations being rather easy arguments to spot, virtually any one that a student does not like will be deemed to fall on the wrong side of that line. Much worse, any generalizations the students produce themselves are clearly on the right side of the line, and not to be questioned.

Many other fallacies carry an inappropriate sense of this dichotomy as well: false appeals to authority, causal fallacies, faulty analogies, slippery slopes, straw men, etc., all are so-called fallacies about which one can create general rules only with a very limited success. When does an authority become false? Under what circumstances do we have enough evidence to establish a causal relationship? Each case must be examined under more or less the guidelines mentioned at the start of my paper. So to wield the fallacy brand iron is pointless if not misguided.

But even if there were some merit to the use of the concept of fallacies, there are even more problems once we start trying to put it into practice. First, there is no way to possibly enumerate all the possible forms of fallacy, since they can be divided and sub-divided almost arbitrarily *ad infinitum, ad nauseam*. Some texts seem to have tried: Alex C. Michalos's text *Improving Your Reasoning*,[2] lists ninety-three different kinds of fallacies. Yet in the attempt to be thorough, many have added fallacies to the list that are not, or are not always, fallacies.

James Freeman lists as one of his fallacies "The Fallacy of False or Questionable Premise."[3] This seems to me to be a complete misapplication of the term "fallacy," since the standard fallacy is a case of erroneous *reasoning*—questioning the truth of premises is another matter. And many texts give us lists of "Fallacies of Ambiguity." These usually include misplaced accent, division, and grand terms like "hypostatization" and the wondrous "amphibole." Again, except for some cases of division, these are not fallacies; they are simply ambiguous language making one's meaning unclear. The problem in a statement such as "If you don't go to other people's funerals, they won't come to yours," is not at all the result of a faulty argument.

But there are much more serious cases than this. Everybody is probably familiar by now with some of the controversies over "slippery slope" and *ad hominem*, for example. At one university I attended I was taught the slippery slope as a style of argument; at my current university and in many texts it is noted as a fallacy—perhaps with some reservations. And with *ad hominem*, a good number of people are finally beginning to realize at least a shade of respectability about the argument. Although the villagers were *wrong* not to come running when the little boy cried wolf for the last time, that did not make them *unreasonable*.

Fallacies such as "guilt by association" and "appeal to ignorance" are also coming to be recognized for their merit. Much like *ad hominem*, guilt by association can be used quite reasonably in the absence of other information. To go back to my earlier example, if our friend not only drinks with a professed communist quite regularly, but also is seen frequenting their political headquarters, then we do have *some* reason to believe he is also a member of the party. It is certainly not conclusive evidence and can be overturned by more concrete evidence such as a membership card to another political group, but it is not entirely irrelevant.

Appeals to ignorance also can be quite reasonable arguments. For example, the claim that I have lost my pen can well be supported by the fact that I have searched my room thoroughly and haven't been able to turn it up. Therefore, since I have no evidence to believe the pen is in this room, I must conclude it is elsewhere. Unfortunately, the four argument types I have listed above are often listed as primarily fallacious ones.

A final reason against the use of fallacies in teaching critical thinking is that dealing with fallacies seems to have very little positive effect on students' writing. As we know, there are countless ways to miss a target, but very few ways to hit it. A common question from students exposed to the fallacy method is "How am I *supposed* to write this argument?" Showing a student a fallacy in his own writing only blocks the road to the conclusion he was trying to reach. It gives him little to no guidance on how to circumvent that road block.

Most of these criticisms can be levelled at almost all critical thinking text books on the market today. At least one exception should be noted, however. *Good Reasoning Matters!*, by Groarke, Little and Tindale,[4] deserves mention not so much because it is a quality text book but because of the approach taken by the authors. In fact two of the authors, Leo Groarke and Christopher Tindale, have published an article in *Teaching Philosophy*[5] which makes the final two criticisms I listed above: that the fallacy method presents many erroneous fallacies and that it does little to help students write and argue well. This is reflected in their text book in that rather than teaching by *fallacy* they teach by *argument form*.

The main advantage to teaching by argument form is that it does not present students with a purely negative view of some of the "fallacies." For example, slippery slope can be presented as a type of argument which must follow specific principles, such as whether or not every 'skid' along the slope is sufficiently analogous to the previous one. If, however, these principles are not followed, then the argument turns bad. This, of course, allows the student to see how to go about building arguments of their own according to the principles.

However, this method is only somewhat of an improvement over the fallacy method. Although this method would not paint a completely black picture of the traditional fallacies, I fear it would still leave a rather black and white image without the requisite grays. If an argument meets the principles it is good; if it does not meet the principles it is bad. Obviously, none of the argument forms are completely described by this simple dichotomy. Additionally, some of the argument forms such as *ad hominem* and "guilt by association" never even reach the pristine white end of the scale. Although, as I have shown, they do have some merit in the absence of other more conclusive arguments, they never carry all that much weight themselves, i.e., they are never really *that* good.

Where the grays do occur is in the application of these principles, trying to determine if a given argument has met them. But this brings us right back to my initial criticism of the fallacy method, that any finite set of fallacies (or argument forms) is superfluous to the basic elements of reason and argumentation. And it is these basic elements that we must use to determine whether or not the vaguer of these principles of argument have been fulfilled. It is by using the basic elements that we determine if all the 'skids' along the slippery slope are sufficiently analogous. In fact, any merit these sets of principles have stems from the fact that they are specialized forms of the more general principles of reason and argumentation.

Additionally, as with the fallacy method, neither can the argument-form method hope to enumerate all the different types of argument. This is quite a different matter from enumerating the deductive rules of inference should the course contain a section on deductive logic. With rules of inference, more complex rules are derived from simpler rules, so it seems more reasonable to provide a few basics and let students work from there. However, informal argument structure is nothing like this. Any list of argument forms listed in a text book would be incomplete, and further forms need not follow naturally or be derivable from the available list. When the student is focused on the handful of argument forms rather than the basic guidelines of reasoning he becomes rather restricted in his writing and criticisms of others' work. Going beyond his finite list of arguments is to venture into uncharted territory. We therefore seem to be opening up a bit of a Pandora's box.

At the end of their section on argument forms in *Good Reasoning Matters!* the authors

> reiterate the point that some arguments do not fit neatly into the categories we have introduced.... Where there is no specific form at all, we must depend on the more general criteria of relevance and sufficiency and acceptability in assessing an argument.[6]

My only problem with this claim is that "some arguments" should probably read "most arguments." But regardless, with both of my criticisms taken together, students using this text will constantly be forced back to the general principles anyway. The "general criteria" they refer to, incidentally, received a total of ten pages discussion in between the exercises and discussions of the traditional fallacies of relevance. Argument forms receive some fifty pages including exercises.

But what do we lose if we cut out fallacies or argument forms from our teaching? Surely there must be something useful that we would lose; otherwise, why would this method be so popular? The obvious loss would be pedagogical efficacy, in two respects. The first respect is that a bunch of categories and classifications and principles make examinations and assignments much easier to create and mark. Many introductory critical thinking courses are basically exercises in spot-the-fallacy; simple assignments with one right answer. There are other even smaller factors such as that the fallacy of amphibole is always good for a few laughs. But I hope that these are benefits we could sacrifice in order to achieve better teaching.

Much more important in respect to efficacy is that the fallacy method might make some of the more basic concepts easier to grasp. Granted, it is a much simpler matter to show a student what a slippery slope is—good or bad—than to teach him properly how to analyze argument in general. Teaching critical thinking is always a difficult business, and any opportunity to make the point to students more clearly may be worth it. However, in my experience, the time spent on teaching fallacies can be far more productively spent teaching the basic fundamental concepts of argument analysis.

Endnotes

[1] Trudy Govier, *A Practical Study of Argument*. Belmont: Wadsworth, 1988. p. 103.

[2] Alex C. Michalos, *Improving Your Reasoning*. Englewood Cliffs: Prentice Hall, 1986.

[3] James B. Freeman, *Thinking Logically, Basic Concepts for Reasoning*. Englewood Cliffs: Prentice Hall, 1988. p. 61ff.

[4] J. Frederick Little, Leo A. Groarke and Christopher W. Tindale. *Good Reasoning Matters! A Constructive Approach to Critical Thinking*. Toronto: McClelland and Stewart, 1989.

[5] December, 1986, 301-318.

[6] Little, et. al., 276.

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CRITICALLY THINKING THROUGH A CRITICAL THINKING COURSE

(Design, Implementation, and Measurement of a Critical Thinking Course)

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Since the Autumn of 1988 Fayetteville State University, North Carolina has conducted a required Critical Thinking course (Philosophy 110). This paper describes the course and the rationale behind the teaching methodology of the course. The paper proceeds in three stages: First, a summary of the teaching *methodology* (design, implementation, measurement) of the course is presented. Second, the *rationale* behind the teaching methodology is delineated. Third, applications of the methodology to critical thinking contents, initial measurement data, and lessons learned are explored.

Methodology

Design. The course was designed by an interdisciplinary panel including participants from the Philosophy, English, Behavioral Science, Music, Speech, and Natural Science faculty. Consensus was reached on a common syllabus. The course is organized on the basis of the following principles:

1. Student behavioral objectives are written for desired learning results.
2. Student behavioral objectives are provided to each student.
3. Test items measure only objectives, and each test item is cross-referenced to (an) objective(s).
4. Exercises provide practice relevant to objectives, and are cross-referenced to objective(s).
5. Grading standards are provided to students, in writing, at the outset of the course.
6. Classroom time is devoted entirely to students' accomplishment of objectives.
7. Students are provided with frequent opportunities for feedback on their performance and frequent grading opportunities.
8. Pre- and Post-testing and Pre- and Post-course assessment are used for course appraisal and course improvement.

Implementation. Interdisciplinary faculty teach the course. The major focus is to produce as much student practice relevant to objectives as possible. To that end there are no lectures. Graded homework is required in advance of class discussion. Teachers spend class time working with students (usually in small groups) on exercises. Teachers provide explanations only in response to questions and then immediately return students to the completion of exercises. Faculty meet regularly to discuss progress, and also to conduct grading exercises in order to reach consensus on the application of the grading standards.

Measurement. Pre- and Post-testing provides a basis for comparison with final grades across sections and also for comparison with SAT scores, GPA's, grades in other specific courses, etc. We are gathering data to establish a control group for the post-test.

A Sketch of the Rationale[1]

The teaching methodology is based on a moral argument that can be expressed in terms of students rights. The following is a fairly condensed sketch of the argument: In order to talk about rights we'll need to talk about ethics. Now there isn't time here to develop a complete theory of ethics and I suspect most of you are pleased to hear that! So what I propose to do instead is to develop briefly two "pictures" or "thought experiments" to give us an idea of what an ethical theory could do for us; next, to begin a list of students' rights; then, to present three arguments to support these students' rights, and next, to give three reasons to take these rights seriously. Here's the first "picture," which was originally suggested by Alasdair MacIntyre.[2] We'll call it "the allegory of Hypatia." More about Hypatia, later.

> Imagine that a catastrophe were to strike the physical and mathematical sciences. A series of environmental or military disasters are blamed by the public on scientists; or perhaps, a fundamentalist faction stirs-up an ultimately devastating social movement against science. However it may have started, widespread riots occur, laboratories are destroyed, physicists are lynched, books and instruments are burned and broken. Finally, a global political movement takes power that successfully abolishes science in the schools and universities, executing the remaining scientists.
>
> Time passes. Much later there is a reaction against this destructive movement and some people seek to revive science, although they have largely forgotten what it was. All they possess are fragments: a knowledge of experiments detached from the theoretical contexts which gave them significance; parts of theories unrelated either to other parts or to experiment; instruments whose use has been forgotten; parts of books, single pages from articles, not always fully legible because torn and charred. All these fragments are reembodied in a set of practices which go under the revived names of physics, chemistry, geometry, biology, astronomy, and so on. Adults argue with each other about the respective merits of relativity theory, and quantum mechanics, although they possess only a very partial knowledge of each. Children memorize the surviving pieces of the periodic

table of the elements and recite as incantations some of the theorems of Euclid. Nobody, or almost nobody, realizes that what they are doing is not science in any real sense at all. For while what they do and say *conforms to certain rules*, the context which would make sense of what they are doing has been lost, perhaps irretrievably.

In such a world people would use expressions such as 'quasar,' 'species,' 'mass,' 'cosine,' 'atomic weight' in systematic and often interrelated ways which would resemble the ways in which such expressions had been used in earlier times before scientific knowledge had been so largely lost. But many of the beliefs presupposed by the use of these expressions would have been lost, and there would be a kind of *arbitrariness* in the use of these expressions which would appear very surprising to most of us. *What would appear to be rival, and alternative beliefs for which no argument could be given would abound*. Relativist theories of science would appear, asserting, "It's all relative," and saying at every turn "Who's to say?" and "What's science for you might not be science for me," and "Different cultures have different science." Rivals would claim with equal conviction that an authority (perhaps even a divine authority) provides The Truth. These "authoritarians" and "relativists" would, of course, not only disagree with each other, but would squabble endlessly among their own kind. Nevertheless, these would be the prevailing, culturally accepted dogmas: Authoritarianism and relativism.

This imaginary world is like those found in some science fiction and in popular pseudoscience. It is a world in which much of the language of science is used, but is out of order. We may notice that if in this imaginary world something like our Twentieth century academic disciplines were to exist, they could not reveal what had gone wrong. Historians would be of little help because of the scope of the earlier destruction; they would, of course, give accounts of the destruction, but *not* of the lost understanding of science. Philosophers especially those like our Twentieth century "phenomenological," "existentialist," or "analytical" philosophers likewise could not reveal the disorder. For the techniques of purely analytical philosophy are descriptive, and descriptive of the language of the present at that. And the standard existentialist claim is that "existence precedes essence." And the most careful and sustained "studies of appearances" intuited by the phenomenologists could not supply what was not *in* the appearances. Furthermore, philosophers captured by the prevailing cultural dogmas would be of no help, including even philosophers who claim *not* to be philosophers, for instance, some of the eminent psychologists or clerics of the time. And this would be so even for "philosopher-psychologists" employing experimental methods, and for "philosopher-clerics" following ancient traditions. Nor would behavioral scientists nor other scholars be able to discern what had gone wrong. Psychological, sociological, or anthropological studies could only describe the apparent "subjectivity" of "scientific" beliefs. The same would hold for those who studied literature of "science." They would find some of it moving or imaginative, and so on. And they could discern much important detail and specific insight. But there would be no knowledge, no objectivity in it. In short, there would be a division between informed and educated "relativists" on the one hand, and less informed "authoritarians" on the other.

But many practical people of the time would simply get on with life, ignoring (as much as possible) both of the rival dogmas. In so doing, some of them might begin to rediscover real science. They might even begin to use scientific language in its traditional (but lost to them) sense. Slow and halting but real scientific progress might begin among them. In fact, one indication that the progress was real would be that it was slow, halting, and full of mistakes and setbacks. Such are the earmarks of genuine knowledge in any field. For genuine knowledge is tentative and subject to review and revision based on evidence and reasoned argument. So among these new scientists there would be much disagreement. But the reliance on evidence and argument would mark this disagreement as quite distinct from the doctrinal disputes among and between the "relativists" and "authoritarians." But yet the new scientists would be, like each of us, creatures of their culture, and hence few, if any, would be of the pure breed. Most of them would hold on to significant parts of one or even both of the existing dogmas: Relativism and authoritarianism.

Likewise, few of the dogmatists would be purebred. Many would believe some combination of the contrary dogmas, without ever noticing the conflict. And some would begin to be affected by the new science growing around them. If in this context, a few people were to begin to put together the pieces of the lost sciences and

> to connect them with the new science, this might be largely ignored or ridiculed. For the old science would be too strongly associated with the dogmas to appeal to the new scientists, and yet the new connections would be too threatening to the dogmatists. And there's a little "scientist" and a little "dogmatist" in each of us. Besides, by now things would be so complex that most folks just wouldn't want to bother. But in neglecting these connections these people would lose a great deal: (a) They would remain ignorant of their own heritage—a significant loss to people. (b) They would continue to believe the false doctrines that science is a matter of subjective intuition or acceptance of authority and this would inhibit scientific progress. (c) They would have to rediscover and reestablish much scientific knowledge, unnecessarily. (d) But most important of all they would have to redevelop the *heuristic* of science: that general understanding of methods and connections which promotes problem solving and the development of new knowledge. In short, they would miss, and need to recreate the capacity to *think* scientifically. Nevertheless, real science would be underway again.

Now what is the point of this first picture? Well, first, although its details are mostly fabricated, it tells a story which is quite true. Science in fact was largely lost to the Western World in the fourth century. The final blow was struck in the year 415 with the destruction of the great museum, library, and research center at Alexandria, Egypt, and the murder of Hypatia, the chief scholar.[3] Science did not awaken again until the Renaissance, a thousand years later. Our thought experiment describes in a general way how science was lost, what went on while it was lost, and how it recovered. But what I now want to note is that we lost ethics at the same time, and that it has only partially recovered at best even now. We use words like "ought" and "obligation;" and we've got some rules like "Don't lie" and "Don't cheat." But when we ask for an explanation of these, we almost always end with a command from some authority, or the claim that "all values are relative," and based at most on our pre-conditioned subjective intuitions. *Indeed, there abound rival and alternative beliefs for which no argument can be given.* And this is what we teach in many ways to children. And the conclusion that some of the brightest of them draw from our actions, even more than our words is that there is no such thing as morality. There are only rules and power. This may be a view that some will hold no matter what we do or what we teach. But we don't know that. For morality (understood ethically) is not practiced on a wide scale. What we miss and what we need to recreate is a capacity to *think* ethically. So much for our first "picture"....

Our second "picture" comes to us from the writings of Albert Einstein. This is Einstein:

> . . . we do not feel at all that it is meaningless to ask such questions as: "Why should we not lie?" We feel that such questions are meaningful because in all discussions of this kind some ethical premises are tacitly taken for granted. We then feel satisfied when we succeed in tracing back the ethical directive in question to these basic premises. In the case of lying this might perhaps be done in some way such as this: Lying destroys confidence in the statements of other people. Without such confidence social co-operation is made impossible or at least difficult. Such co-operation however is essential in order to make human life possible and tolerable. This means that the rule "Thou shalt not lie" has been traced back to the demands: "Human life shall be preserved" and "Pain and sorrow shall be lessened as much as possible."
>
> But what is the origin of such ethical axioms? Are they arbitrary? Are they based on mere authority? Do they stem from experiences of men and are they conditioned indirectly by such experiences?
>
> For pure logic all axioms are arbitrary including the axioms of ethics. But they are by no means arbitrary from a psychological and genetic point of view. They are derived from our inborn tendencies to avoid pain and annihilation and from the accumulated emotional reaction of individuals to the behavior of their neighbors.[4]

It is in the context of this second "picture" that we can now proceed to talk about students' rights. The basic idea in this picture is that people are fundamentally social beings, and so morality makes sense as a kind of goal-directed activity. The point of the game is *to promote the common benefit of all through the individual fulfillment of each.* This may be called *the common good.* For those who have an interest I can give you a more complete argument in support of this view; but again, I suspect that most of you are quite satisfied not to hear all of that just now! So instead, we will move directly from the *common good* to students' rights.

I propose to begin a list of students rights by first examining those things students have the right to demand of us, as teachers. The question about each proposed right is whether we can give a moral argument to support it as a right.

But first, here's a start for a list of students' rights and some of the rationale behind them:

1. Each student has the right to be provided with clear, concise,

student behavioral objectives for each reading assignment and activity, including each class hour. Students have the right to insist that these objectives be truly behavioral, telling students what performances are expected and avoiding verbs like "know" or "understand." (Of course students want to know and understand, but teachers owe it to them to tell them how they are expected to *show* their knowledge and understanding).

2. Each student has the right to be provided with these objectives *before* they are required to complete readings, activities, essays, reports, research, etc., so that they can use these objectives to prepare.
3. Each student has the right to be tested *only* on these objectives and the right that every exam or quiz *item* specifically identify the objective(s) to be achieved in responding to the item. It is simply unfair to do otherwise.
4. Each student has the right to be provided with explicit, written grading standards for each grading opportunity and the right to demand that teachers stick to these standards. This means describing the qualities of an "A", "B" , etc. for each assignment. (Students cannot be expected to meet standards if they don't know, in advance, what the standards are).
5. Each student has the right to be an active participator in the learning process rather than a passive object of oratory. (Nothing is better learned than something that is *done* rather than heard; and, it is simply unfair to fail to provide students with practice *relevant* to the objectives and grading standards).
6. Each student has the right to frequent grading opportunities, and frequent opportunities for feedback that realistically informs students how they are doing and how to improve. (This simply points out that right #5 is a *constant* right, not an occasional nicety).
7. Each student has the right that teachers and administrators conduct pre- and post-assessment of courses in order to evaluate whether, and how well, courses meet objectives.

I am claiming that these are some of the moral rights of students toward teachers at every level of education. I'd like to mention three arguments in support of that claim. *First,* since the point of morality is to promote the common benefit of all through the individual fulfillment of each (the common good); and since, as teachers we know (or should know) that these methods are among the best for promoting student achievements;[5] and since, promoting greater student achievements promotes the common good, we have a moral obligation to do these things with our students. Hence, we're obligated; and, hence students have these rights. *Second*, knowing what we know (or should know), were we in the students' position, we would demand these rights. So, unless there is some good reason to think that we have rights that students do not have, students have these rights, whether or not they know what we know. *Third* a careful review of items #1 through #6 will reveal, that these items state no more than a minimally decent degree of simple fairness in the relationships between students and teachers. I suspect that anyone who could not recognize these paradigm cases of fairness would be unlikely to be able to follow any moral argument. Similarly, items #1 through #7 describe a minimally adequate comprehension of the teaching craft, and a minimally adequate recognition of professional responsibility. So, since we have these responsibilities, students have these rights. Three moral arguments should be enough, though I'm confident we can develop more, if needed.

Now at this point you may think that we're just talking about good educational practice[6] and that there's no need to make a great moral issue of the matter. But there are several good reasons to keep our moral tone. *First*, it is one sort of thing to identify good teaching practice, and quite another sort of thing to point out students' rights. Peoples' rights generally are taken more seriously, and generally are more likely to be fulfilled than mere good practice. And we've given three arguments to show that these are students' *moral* rights. *Second*, since we do live in a time in which morality often is misunderstood, we can promote the common good *by giving* a few *moral* arguments to support students' rights. *Third*, there still are some of our colleagues (especially, some college professors) who have not yet gotten the message. It is time *their* students begin to demand that these rights be met, and it is time that we support those students. Three reasons should be enough, but again, we probably can think of more.

I do not wish to close this section without returning to the matter of human fallibility; there is no claim to certainty in knowledge; support of evidence and argument is the most we can expect or get. As the philosopher George Santayana once said, "We cannot cease to think and still continue to know."[7] The knowledge offered here is that students have rights as well as responsibilities *vis à vis* their teachers, and that we can say, fairly clearly, what these rights are.

Applications and Lessons Learned

Critical Thinking Content. The course is designed based on certain fundamental claims regarding critical thinking: Everyone, or almost everyone thinks critically. Everyone or almost everyone can improve critical thinking skills. Generalizable critical thinking skills[8] can be learned through practice with particular examples; a wide variety of practice with a wide variety of particular examples increases the likelihood that generally useful critical thinking skills will be acquired. Critical thinking skills improve with practice and decline without practice. Practice means active participation, not passive attention.

Some typical critical thinking skills practiced (taught) in the course are as follows:

- recognizing and developing claims
- distinguishing claims from other uses of language
- identifying issues
- recognizing and developing conclusions

- recognizing and developing premises
- recognizing and developing arguments
- recognizing ambiguity and unclarity in claims
- clarifying claims
- evaluating claims in terms of clarity and precision
- recognizing roles of context in determining meaning
- distinguishing knowledge from belief
- distinguishing fact from opinion
- identifying and avoiding errors in reasoning (informal and formal fallacies)
- assessing the relevance of claims to other claims
- discerning whether pairs of claims are contrary, contradictory, not in conflict, or paradoxical
- evaluating evidence and sources of evidence
- distinguishing arguments from explanations
- distinguishing phenomena from explanations
- identifying and evaluating different kinds of explanations
- distinguishing valid from invalid arguments
- developing valid arguments
- developing sound arguments
- developing strong arguments
- assessing whether a deductive argument is sound
- assessing whether an inductive argument is strong
- identifying and evaluating inductive generalizations
- identifying and evaluating causal arguments
- distinguishing prescriptive, moral, and nonprescriptive claims
- identifying and evaluating moral claims and moral arguments

Applications and Initial Data The applications of the methodology to course content can best be understood through a review of course materials and initial data. The *figures* that follow offer "snapshots" from the syllabus and an exam. Figures l, 2, and 3 show typical pages from the syllabus. Note that objectives are cross-referenced to reading, and to homework assignments. The objectives also serve as a guide to teachers for class activities. Figures 4, 5, and 6 show typical pages of 12 exams matched to the syllabus material in the first three figures. Note that specific objectives are given for each test item. Figures 7 through 10 present pages from the syllabus giving grading standards and guidelines for the four essays required during the course. Finally, some of our initial data are presented in Figure 11. The data show progress, and we continue to analyze results and to modify the course to improve progress.

Lessons Learned Logic, in the broad sense of Critical Thinking (CT) skills[9] like those listed above, has not been taught as a required course in American colleges since the 1950's or '60's. Part of the explanation of this fact is that from the 1930's forward, philosophers in America tended to emphasize formal deductive systems *in teaching logic courses* to the exclusion of informal and broadly general parts of logic. The result is that logic is no longer a required course and when logic is taught, it deals almost entirely with formal systems. So, informal and widely applicable CT skills (ancient parts of logic) have been absent from required American college curricula for about forty years. This is the curriculum that has provided the education for our present college professors. If you would like to know the effects created in an academic community and in more general culture by the absence of these traditional parts of logic from the required curriculum, just look around.

In creating the CT course at Fayetteville State University we noted early on, wide disparities among the twenty to thirty or so sections of the course taught each semester. Non-philosopher faculty testified as to the unfamiliarity of the course content, and found the content to be difficult. Analyses of pre- and post-test data show that post test scores interpolated to letter grades (A, B, C, etc.) matched closely to final course grades in sessions taught by philosophers. but varied widely from final course grades in sections taught by non-philosophers. We have tried various techniques to reduce these discrepancies with some moderate success.

Without continued use of CT skills by faculty in courses *following* a CT course, the burden of employing CT skills in these courses falls entirely upon students. This especially can be troubling to faculty members when students, for example, begin to point out inconsistencies, ambiguities, etc. in exam questions. Yet a greater problem is that without widespread CT skills among the professoriate, little actual CT practice is likely to occur among students. Professors cannot promote CT practice without improving their own competence in general CT skills. Students need a freshman level course in CT in order to acquire basic general CT skills. But the basic skills will not develop into mature, sophisticated CT skills without continued practice and further development throughout the college experience.

Additionally, CT has become a fad. There are a number of textbooks, published by non-philosophers, which actually present *as arguments* certain patterns of thinking which are in fact examples of general mistakes in reasoning; there are some such text books which present ambiguous, vague, or simply incorrect distinctions between, for example, inductive and deductive arguments; and, so on.... Yet the net results of all the interest in CT seem fairly positive. At least there is some level of interest about CT skills in the academic community. But how widely spread is this level of interest? How many American colleges and universities have a required CT skills program? Unless the CT community can provide substantial subject matter competence, it is unlikely that the future prospects for the spread and development of CT skills will be much greater than the prospective fate of any fad.

Should we respond to the issue of subject matter competence by having CT courses taught only by philosophers? Well, this would be a partial response to the issue; such an approach has the advantage of presenting freshman students with teachers who have appropriate subject matter competence. But it has the risk of reducing, rather than increasing, interest in CT skills in the wider academic community. My own suggestion is to increase the number of philosophers and to decrease the number of nonphilosophers teaching courses in CT; and, to increase the number of programs in faculty development like the one at Montclair State College. CT skills historically have been taught by philosophers and a return to this pedagogical ideal is appropriate; for, CT skills (skills of logic) are at the very center of philosophy as a discipline. Yet a period of transition is equally needed. Philosophers must *both* remain generally involved with the wider academic community, *and* be careful *not* to go down the "deductive formalization" path in their *teaching of CT skills*, if there is to be any long-term likelihood that CT skills will spread widely through the academic community and through American culture as well. We will need to rely on the market to deal with textbook subject matter competence. But with the forty year lacuna in the teaching of CT skills in American colleges mentioned above, we face some serious problems in the content knowledge of both the producers and the consumers of CT textbooks. Hence, consumers should be especially careful: *Caveat emptor*. As for the general advancement of CT skills, teachers of other disciplines need to increase the use of CT skills in their courses, and again, this is where programs like the one at Montclair State can be especially useful. To use an analogy, psychologists and economists need to use statistical thinking in their disciplines and in their classrooms. To do that, both they and their students must have acquired statistical thinking skills through a course in statistics. That course must be preceded by a course in algebra. A CT course is most closely matched to the algebra course in this analogy.

Notes

[1] Much of the material in this section on rationale appears in Fawkes, Don, "Performance Technology and the Schools" (forthcoming) in the November/December 1991 issue of *Performance and Instruction*, (Washington D.C.: National Society for Performance and Instruction).

[2] Alasdair MacIntyre, *After Virtue* (Notre Dame, Indiana: University of Notre Dame Press, 1981), pp. 1-2. This allegory is adapted, historically compared, and expanded from MacIntyre's original. It is arguable that MacIntyre works in the tradition of Aristotle. While the present work owes much to Aristotle (and to MacIntyre), it looks elsewhere for inspiration and insight. If the present work follows any ancient tradition, then that would be a tradition inspired by Eratosthenes and Democritus. Extremely little remains of the works of these two thinkers because of the destruction of the library at Alexandria, Egypt in the year 415. But it seems that while Aristotle, like Plato, emphasized a Greek/nonGreek distinction and held that some persons are natural slaves, Eratosthenes and Democritus were cosmopolitan and skeptical about natural typing.

But even these general remarks can be only speculations on fragments.

[3] Carl Sagan, *Cosmos* (New York: Random House, 1980) pp. 20 and 335-337. For a more complete account of the history of the Library at Alexandria see Peter Marshal Fraser, *Ptolemaic Alexandria* (Oxford: Clarendon Press, 1972).

[4] Albert Einstein, "The Laws of Science and the Laws of Ethics," (1950), as found in Albert Einstein, ed., *Out of My Later Years* (Secaucus, NJ: The Citadel Press, 1956). pp. 114-115

[5] Among the many references supporting these pedological practices and describing the context in which they are suggested are the following: Norman Gronland, *Stating Behavioral Objectives For Classroom Instruction* (New York: Macmillan, 1970). Norman Gronland, *Individualizing Classroom Instruction* (New York: Macmillan, 1974). Robert F. Mayer, *Developing Attitude Toward Learning* (Belmont, California: Fearon-Pitman Publishers, 1968). Robert F. Mager, *Preparing Instructional Objectives* (Belmont, California: Fearon Publishers, 1975). Robert F. Mager, *Instructional Module Development* (Los Altos, California: Mager Associates, Inc., 1977). Robert F. Mager, and Peter Pipe, *Criterion Referenced Instruction: Analysis, Design, and Implementation* (Los Altos, California: Mager Associates, Inc., 1979). Michael Scriven, *Reasoning* (New York: McGraw-Hill, 1976). Michael Scriven, *Evaluation Thesaurus* (Inverness, California: Edgepress, 1980). Michael Scriven, *The Logic of Evaluation* (Inverness, California Edgepress, 1980). Michael Scriven, *The Evaluation of Composition Instruction* (Inverness, California: Edgepress, 1981). Michael Scriven, *Introduction to Evaluation* (Inverness, California: Edgepress, 1981). Lynne V. Cheney, *Tyrannical Machines: A Report On Educational Practices Gone Wrong and Our Best Hopes for Setting Them Right* (Washington DC: National Endowment for the Humanities, 1990). Ernest L. Boyer, *Scholarship Reconsidered: Priorities of the Professorate* (Princeton NJ: The Carnegie Foundation for the Advancement of Teaching, 1990).

[6] *Ibid.*

[7] Quoted, A. E. Murphy, *The Theory of Practical Reason* (La Salle, Illinois: Open Court, Paul Carus Foundation, 1964), p. 396. I do not know the original source for this quotation as Murphy gives none. The remark is consonant with Santayana's epistemological conclusions, and it does have the sort of insight, compactness and style which are typical of Santayana's works.

[8] There is some debate within the critical thinking community on the question of whether critical thinking is a distinct subject. Though there is not space here to deal with the various arguments, some of the relevant reasoning on this matter may be stated fairly briefly: Historically, critical thinking skills have been taught under the subject heading, "logic," a review of the contents, for example, of John Stuart Mill's *A System of Logic* and of Moore and Parker's *Critical Thinking* easily can substantiate this historical claim; and, there are many more supporting examples. It would be an obvious instance of the general mistake in reasoning usually called 'appeal to common practice' to conclude on the basis of such historical evidence that critical thinking is a distinct subject. Instead, analysis of specific contents of critical thinking texts

and of logic texts shows that critical thinking may be defined by giving a specific list of generalizable skills (like the list given above in this paper); each of these skills, in turn, may be defined ostensively. Hence, the conclusions are warranted that critical thinking is a distinct subject historically taught under the name "logic;" and, that philosophers like Mill were not mistaken in treating it as a distinct subject.

[9] *Ibid.*

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Appendix

Figure 1

Homework assignment is matched to objectives, and the objectives also match planned classroom activities, essays, and each test item.

A few objectives for the course are placed inside of brackets, { }. These brackets indicate that the objective has a broad and/or speculative nature, and that the material may go beyond the scope of the Moore and Parker text. You should return to these bracketed objectives from time to time, and re-think the responses you would give to them. You will be advised in advance when these objectives are included in exams.

Chapter 1: "What is Critical Thinking?"
STUDENT OBJECTIVES

*1. Distinguish claims from other types of verbal expressions, such as questions, commands, and exclamations.
*2. Define critical thinking.
*3. Distinguish premises and conclusions.
*4. Explain the differences between logic and critical thinking.
5. Identify three purposes for which claims are made: a) to convey information, b) to affect our attitudes, c) to influence our behavior.
*6. Distinguish claims supported by reasons from those not supported by reasons.
*7. Explain the term "issue" as it is related to claims and arguments.
8. Identify the issues addressed by specific arguments.
*9. Define the term argument.

Class Hour	Objectives	
1	Ch.1: 2,4	(Aug. 23): No assignment
2	Ch. 1: 1 thru 9	(Aug. 26): Read this syllabus. Read pp. 2-20 and complete exercise 1-1. Begin collecting ads from newspapers and magazines. Plan to collect twenty ads for your use by class hour 5 (see exercises 5-9 and 5-10). Nothing should ever be torn or removed from materials in the library. If you use sources for this project which are not your property, then photocopy the ads.
3	Ch. 1: 1, 6, 8	(Aug. 28): Complete exercises 1-3 and 1-4.

Chapter 5: "NONARGUMENTATIVE PERSUASION"
STUDENT OBJECTIVES

1. Identify nonargumentative persuasive devices within claims or arguments.

Figure 2

2. Identify several linguistic devices employed in the slanting of information:
    a) Euphemisms,
    b) Dysphemisms,
    c) Innuendo,
    d) Loaded Questions,
    e) Weaslers,
    f) Downplayers,
    g) Proof Surrogates,
    h) Stereotypes,
    i) Hyperbole,
    j) Persuasive Definitions, Persuasive Explanations, and Persuasive Comparisons.

3. Apply critical listening and watching skills to electronic media news reports.

*{4. Explain ways in which one's beliefs, attitudes and behavior are heavily dependent upon the information one receives; and, ways one's attitudes and beliefs affect the information one receives.}

5. Analyze nonargumentative persuasive devices.

6. Assess additional sources of information in responding to advertising claims.

Class Hour	Objectives	
4	Ch. 5: 1, 2	(Aug. 30): Read pp. 116-128. Complete exercises 5-1, 5-3, and 5-4.
		(Sep. 2) HOLIDAY
5	Ch. 5: 3, 4, 5, 6	(Sep. 4): Read pp. 132-142. Complete exercises 5-6 or 5-7 or 5-8. Complete exercises 5-9 and 5-10.
6	Ch. 6: 1, 2, 3	(Sep. 6): Read pp. 146-164. Complete exercises 6-1 and 6-5. Begin work on exercise 6-13. Exercise 6-13 is a graded essay and is due at the beginning of class on class hour # 8. Plan to write at least one page for this essay. (See also Essay Guidelines in this syllabus.)

Chapter 6: "PSEUDOREASONING I"
STUDENT OBJECTIVES

1. Identify "pseudoreasoning" techniques such as:
    a. Subjectivist fallacy
    b. Appeal to belief
    c. Appeal to consequences of belief
    d. Scare tactics
    e. Appeal to pity
    f. Peer pressure
        (1) Bandwagon
        (2) Appeal to loyalty

Figure 3

g. Apple polishing
    (1) Appeal to vanity
h. Horse laugh
i. Appeal to spite or indignation
j. Two wrongs make a right
    (1) Appeal to common practice

2. Analyze pseudoreasoning techniques and their effects.
3. Apply knowledge of pseudoreasoning techniques to specific examples or passages by:
    a. Stating the main issue.
    b. Identifying the feeling or sentiment evoked.
    c. Stating whether the feeling or sentiment is relevant to the main issue.
    d. Explaining particular types of pseudoreasoning used.
    e. Determining the credibility of claim(s) based on the above (a thru d) analysis.

Class Hour	Objectives	
7	Ch. 6: 1, 2, 3	(Sept. 9): Complete the starred items and one unstarred item (your choice) in exercises 6-11 and 6-12. Do the starred items first.
8	Ch. 7: 1, 2, 3	(Sept. 11): Note: The essay on exercise 6-13 is due at the beginning of class today. (See also Essay Guidelines in this syllabus). Read pp. 177-190. Complete exercises 7-1 and 7-2.

Chapter 7: "Pseudoreasoning II"
STUDENT OBJECTIVES

1. Cite in examples pseudoreasoning patterns (patterns less dependent upon emotional appeal than those outlined in Chapter 6), such as:
    a. Ad hominem fallacy
        (1) Personal attack
            (a) Circumstantial ad hominem
        (2) Pseudorefutation
        (3) Genetic fallacy
    b. Selfish rationalizing
    c. Burden of proof fallacy
    d. Straw man fallacy
    e. False dilemma
    f. Slippery slope fallacy
2. Sort out elements of pseudoreasoning and reasoning in examples of decision making.
3. Evaluate in examples the influence of certain pseudoreasoning patterns as they affect actions on claims.

Figure 4

Section #2 (10 points) (Ch1 #8)

Answer any three (your choice).
Identify the main issue in the following passages.

EXAMPLE: Preston didn't come to class today. That fact makes it clear that he does not deserve to pass this course.
ANSWER: The issue is whether Preston deserves to pass this course.

1. "NORTH FOR PRESIDENT. HE'S GOT THE GUTS IT TAKES."
-Bumper sticker

2. Letter to the editor: "They're at it again! Fall has arrived and it's time for the rice farmers to start polluting the air with smoke from the burning fields. This summer saw the worst forest fires in history and the smoke was nothing compared to what we get every fall day, courtesy of the friendly rice farmer. Yes, we know, the alternatives to burning are too expensive, but Mr. Rice Farmer shouldn't your own conscience tell you to get out of a business that requires you to poison the air we breathe? Do you really have the right to make bucks at the expense of so manypeople?"
-Tehema County Tribune

3. "Turkeys may be the most popular holiday bird, but they are definitely not the smartest. Young turkeys aren't allowed outside of the brooding house because they will peer into the sky if it begins to rain. While admiring their first rainstorm the young turkeys drown." -Homeowners (real estate newsletter)

4. "The defeat of Judge [Robert] Bork's confirmation [to the Supreme Court] was healthy for our judicial system because it focused attention on the process of constitutional interpretation and the need for social consensus upon which the legitimacy of law so vitally depends. It was also a reminder that the process of seating a justice on the Supreme Court is an explicitly political one in which the legislative and the executive branches of government can and should play co-equal parts." -John B. Oakley, Sacramento Bee

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Figure 5

Section #3 (10 points) (Ch5, #1,#2)

Answer any three (your choice).

Identify and explain the use of any slanting devices you find in the following selections. If any of the slanter labels below apply, say so in your answer.

Slanter Labels:
a. Euphemism
b. Dysphemism
c. Innuendo
d. Loaded Question
e. Weasler
f. Downplayer
g. Proof surrogate
h. Stereotype
i. Hyperbole
j. Persuasive definition
k. Persuasive explanation
l. Persuasive comparison

1. "During World War II, the United States government resettled many people of Japanese ancestry in internment camps."

2. "Although it has always had a bad name in the United States, socialism is nothing more or less than democracy in the realm of economics."

3. "Even though its detractors like to paint pictures of robber barons exploiting the workers, capitalism is nothing but individual freedom in the realm of economics."

4. "Since they preside over the buying and selling of about half the world's oil, the independent traders who make up the spot market control the prices of oil like absolute monarchs of the sixteenth century."

Figure 6

Section #4 (10 points) (Ch6 #1, #2, #3)

Answer any three (your choice).

Identify any instances of pseudoreasoning that occur in the following passages, by explaining in one or two sentences why the pseudoreasons are irrelevant to the point at issue. If any of the pseudoreasoning labels below apply, say so in your answer.

Pseudoreasoning Labels:
a. Subjectivist fallacy
b. Appeal to belief
c. Appeal to the consequences of belief
d. Scare tactics
e. Appeal to pity
f. Peer pressure:
   (1) Bandwagon
   (2) Appeal to loyalty
g. Apple polishing or appeal to vanity
h. Horse laugh
i. Appeal to spite or indignation
j. Two wrongs make a right
k. Common practice

1. Overheard: "Hmmmm. Nice day. Think I'll go catch some rays." "Says here in this magazine that doing that sort of thing is guaranteed to get you a case of skin cancer." "Yeah, I've heard that, too. I think it's a bunch of baloney, personally. If that were true you wouldn't even be able to just plain lay out! Ugh!"

2. "Hey! Don't pick up that toad—they cause warts! Everyone knows that!"

3. RALPH: He may have done it, but I don't hold him responsible I'm a determinist, you know.

SHARON: What's that?

RALPH: A determinist? Someone who doesn't believe in free will. There's no free will.

SHARON: Oh. Well, I disagree.

RALPH: Why's that?

SHARON: Because. Maybe that's your view, but it's not mine.

4. WINIFRED: Hey, read this! It says they can actually teach gorillas sign language!

ELDRIDGE: Uh huh, sure. And next they'll make them presidents of universities.

Figure 7

Graded exercises (homework)	20%
Essays	30%
First exam	5%
Second exam	10%
Third exam	10%
Post exam	5%
Comprehensive final exam	20%
	100%

(2) Any assignment that is not turned in on time (ie. at the beginning of the class period on which it is due) and for which your instructor has not agreed in advance to a late submission, gets a score of zero.

(3) The University standard scoring scale is as follows:

A	92 - 100
B	83 - 91
C	73 - 82
D	64 - 72
F	below 64

(4) Your instructor will provide you with a written description of grading standards for essays and other writing assignments (exercises, exams) or use the following description:

> A correct and complete answer gets an "A"; one that otherwise meets the standard for an "A" but that has minor mistakes and/or blemishes of expression gets a "B"; one that does an adequate basic job and misses no more than one important point gets a "C"; one with serious omissions or errors, but that does express some important points gets a "D"; and, anything below that gets an "F". Standard English usage is considered in assigning grades.

C. Exams - At least 50% of all test items will be exercises taken directly from the Moore and Parker text, and all test items will be derived from the objectives stated in this syllabus. Each test question will specifically identify the objective being tested. Hence, the best preparation for the exams is to write responses to the objectives as a study guide, and to complete as many exercises as you can beyond the ones that are assigned.

D. Essay Resources: Some of the essay assignments require that you find resource material and all of the essay assignments can involve the use of such references. Unless otherwise approved by your instructor in advance you may use only resources published on or after thirty days prior to the first day of class in this course.

E. Essay Guidelines: Each essay must be typed or written clearly in blue or black ink on white paper. Requirements for each of the essay assignments in the course are listed below. (Your instructor may add to or modify these lists; if so, your instructor will identify the Syllabus objective(s) to be achieved by each item or change.) The requirements are different for each essay. These requirements are stated in the form of questions. To meet the requirements you should

Figure 8

be able to answer "yes" to each question in checking your essay. Your instructor will use these lists and the grading standards to determine your grade for each essay. [Syllabus objectives and/or Syllabus requirements are provided within the brackets following each question.]

1. Chapter 6
   (a) Is the essay typed or written clearly in blue or black ink on white paper? (as specified by the assignment).
   (b) Is the source attached? (as specified by the assignment).
   (c) Is the source dated as required by the syllabus paragraph IV D?
   (d) Does the source advocate a conclusion; not make a report, etc.? (as specified by the assignment).
   (e) Does the essay state the issue? (ch 1 #8).
   (f) Does the essay state the side of the issue (the conclusion) that is advocated by the source? (ch 6, #3).
   (g) Does the essay state a mistake in reasoning (pseudoreasoning) that is made in the source? (ch 6, #1).
   (h) Does the essay explain why the source does not really support its conclusion, ie., does the essay explain the mistake in reasoning (pseudoreasoning) made by the source? (ch 6, #2).
   (i) Does the essay either describe another conclusion supported by the source, or state that no other conclusion is supported by the source?(ch 6, #2).
2. Chapter 4
   (a) Is the essay typed or written clearly in blue or black ink on white paper? (as specified by the assignment).
   (b) Is the source attached? (as specified by the assignment).
   (c) Is the source dated as required by the syllabus paragraph IV D?
   (d) Does the source present an explanation? (ch 4, #3).
   (e) Does the essay state the phenomenon explained in the source? (ch 4, #5).
   (f) Does the essay describe the explanation given in the source? (ch 4, #3).
   (g) Does the essay evaluate the explanation given in the source based on each of the criteria listed in the syllabus, objective 2, Chapter 4? (ch 4, #2).
   (h) Does the essay either compare alternative explanations, or state that only one explanation is given in the source? (ch 4, #2).
3. Chapter 8
   (a) Is the essay typed or written clearly in blue or black ink on white paper? (as specified by the assignment).
   (b) Is the first sentence (the essay's conclusion) stated correctly (as given in the assignment)? (as specified by the assignment).

Figure 9

(c) Does the essay correctly state the conclusion of the argument from exercise 8-17? [ch 8, #2]

(d) Does the essay evaluate the truth of the premises of the argument from exercise 8-17? [ch 8, #8]

(e) Does the essay evaluate the support the premises of the argument from exercise 8-17 give to the conclusion of the argument from exercise 8-17? [ch 8, #8]

(f) Does the essay's argument support its conclusion (as stated in the first sentence)? [ch 8, #11] Note: Repeat steps (a) thru (f) for a second unstarred item, as required by the assignment.

4 Chapter 12

(a) Is the essay typed or written clearly in blue or black ink on white paper? [as specified by the assignment]

(b) Is the first sentence the conclusion? [as specified by the assignment]

(c) Is the conclusion a moral prescriptive claim? [as specified by the assignment and ch 12, #1, #3]

(d) Are the premises either probably true or true beyond a reasonable doubt? [ch 8, #8]

(e) Is there at least one general moral prescriptive premise in the argument? [ch 12, #1, #3]

(f) Is/are the moral prescriptive premise(s) supportable on the basis of moral reasoning? (This means you must use moral reasoning in this essay. Mystical, spiritual, or religious claims; or claims about "higher powers"; or claims about the political, moral, or legal beliefs or standards of any group, culture, or society; or claims about how you or someone "feels" are descriptive claims about a source and do not meet the reasoning requirements of this assignment. Such issues will be addressed in the discussion of Chapter 12. But the basic idea is that once you give reasons (not descriptive claims about a source) to support, for example, a claim like "Lying is wrong" in a particular situation, then you are engaging in moral reasoning. And moral reasoning is what this assignment, and this part of the course, are about.) [ch 12, #1, #4, #5, #8, #9]

(g) Do the premises support the conclusion? [ch 8, #11, ch 12, #9]

(h) Does the essay consider all significant, relevant claims that have a bearing on the argument? (In particular, does the essay consider reasons that support at least one alternative to the essay's conclusion, and does the essay respond to these reasons?) [ch 12, #7, #9].

Figure 10

F. Attendance: You are responsible to know and comply with the University Attendance Policy. Remember that it is your responsibility to explain to your instructor at the earliest possible time any absence, lateness, or early departure from class.

G. Students are responsible for all course material from the first day of class to the last day of the semester; this includes material missed due to late registration and/or excused absences, and all assignments whether or not discussed in class.

V. COURSE OBJECTIVES AND COURSE OUTLINE NOTES:

1. Some of the objectives (marked with an asterisk, *) can be answered directly; you should prepare written answers to these objectives in preparation for exams. The remaining objectives require response to exercises, and practice with these exercises is the other method needed to prepare for exams. Finally, many objectives require both kinds of response (written answer and practice with exercises). Completing homework assignments will make this clear. You should note that each...

(The above ellipsis is closed herein. Can you find the closure?)

Figure 11

Pre and Post Test Results Correlated to Final Grades in PHIL 110, Critical Thinking
(For students who took both pre and post test)

Spring 1990 (maximum score, 26)

Final Grade	#of students	Avg. Pre-Test Score	Avg. Post-Test Score	Avg. Difference
A	51	13.10	16.75	3.65
B	45	10.24	12.38	2.13
C	63	9.81	11.05	1.24
D	21	8.10	9.17	1.07
F	4	10.00	11.00	1.00

Fall 1990 (maximum score, 30)

A	58	12.7	16.7	4.00
B	81	9.96	13.67	3.71
C	94	10.10	12.28	2.18
D	26	10.01	13.15	3.14
F	2			

Fall 1990
Pre and Post Test Results

Difference: Pre and Post Test Score	Number of students
+15	1
+14	1
+13	3
+12	2
+10	5
+ 9	9
+ 8	9
+ 7	14
+ 6	32
+ 5	36
+ 4	30
+ 3	42
+ 2	30
+ 1	29
0	18
- 1	15
- 2	8
- 3	8
- 4	1
- 5	1
- 6	2

CRITICAL THINKING AND DECISION MAKING

Janevive Jean Mechanic

Making reasoned decisions is one of the marks of an educated human being. The ability to make decisions and the informed judgement brought to those decisions allows people to manage both their personal and their public lives. Since this is the promise of education, it seems clear that the goal of education should be: "Schooling focused on decision making, the thinking skills that serve it, and the knowledge base that supports it" (Wales, Nardi, Stager, 1987).

Current schooling is focused on the knowledge base. Life hands students a jigsaw puzzle with hundreds of pieces. Students must determine how to assemble the puzzle. Teachers can help. They can present the skills, methods, and strategies needed to put the pieces together. They can provide practice. And they can help students to reflect on what they have done. This paper will present a guide for teachers who want to assist students in learning a strategy to be applied to problems that have only one solution as well as problems that have good, better, and best solutions. The strategy involves nine primary steps: Becoming aware of a problem, identifying, and stating it clearly; Gathering and ordering relevant information; Formulating tentative solutions; Selecting a few that seem most promising; Considering factors that are pertinent to each alternative; Setting up a diagram which indicates both convergent (supporting) statements and divergent (opposing) statements for each option (for more difficult problems, a decision matrix may be necessary); Evaluating the alternatives and reasons offered in support of each one and choosing the one that seems most promising; Anticipating adverse consequences; Selecting the solution and implementing it. Follow-up information will enable the student to determine whether the alternative he/she has chosen is indeed the best solution to the problem.

Let's discuss this strategy in relation to a problem students often need to solve: How to travel to school and work. This has become a problem because the car a hypothetical student has been driving is five years old and has been in a repair shop three times during the previous year: once for a transmission leak, once for a water pump repair, and once for break failure.

Becoming Aware, Identifying, and Stating the Problem

It is a truism that awareness is a necessary first step in virtually all decision making. Problems may occasionally evaporate, but they never solve themselves. This awareness may range from a vague sense of discomfort to a clearly conceived apprehension of a specific critical situation. The more clearly a problem is understood, the more appropriately a method for solving it can be devised.

Let us suppose one is aware of the existence of a problem. A second important element is the analysis of the problem, coming to terms with it. What precisely *is* the problem? What sort of problem is it? Is it a calculation problem? Is it a problem involving interpersonal dynamics? How should we describe or represent it?

In our present example, let us suppose Jim has enrolled at Montclair State College. He also has a part-time position that requires his presence three times during the week. He must travel from his home to school and then to his place of employment. He is aware that he must make a decision regarding his method of travel from his home to Montclair State and then to MacDonald's. The problem has several dimensions: Jim must be at his first class at ten a.m. and at MacDonald's at four p.m. He lives in South Orange so time is an important consideration. Jim's professors require prompt appearance for classes and he knows his supervisor at MacDonald's will discharge him if he does not arrive on time. There is also the fact that parking on the Montclair State College campus is difficult if a student arrives on the campus after 7:30 a.m. Jim must take these factors into account when considering a solution to his problem.

Collecting Relevant Information

Once a problem has been recognized and defined, information which will be useful to its solution must be collected. Information may come from the problem solver's experience, from experts in the area, from parents, friends, acquaintances, or from books, newspapers, magazines. There are five requirements for accepting information. First, the data must be accurate, second, it must be relevant, third, information must be free of bias, fourth, it must be correctly interpreted, and fifth, it must be well organized.

Returning to our hypothetical problem: Jim begins to collect relevant information. He determines the traffic patterns on the Garden State Parkway at the hours he will be using it. He calculates the mileage from South Orange to Montclair and from Montclair to his job in Newark. He investigates bus and train schedules from South Orange to Montclair, from Montclair to Newark, and from Newark to South Orange. He speaks with several students who have been commuting to the Montclair State campus for several years. He interrogates fellow workers at MacDonald's in Newark to learn how they travel from home to work.

Formulating Tentative Solutions

It might seem that if a problems is recognized, clearly defined, and appropriate information collected, formulating a solution would be a simple matter. This is often the case. Sometimes problems can be stated so clearly that the solution follows easily after the needed facts have been accumulated. However, in many cases one must inquire into a variety of possible alternatives. In actual practice, one starts to guess solutions even while collecting information.

Although there are no set rules for creating possible alternatives, some suggestions can be offered. One of these suggestions is: the more clearly the problem is defined, the more alternatives can be formulated. For example if Jim defines his problem as, "How can I get dependable transportation to school and work?" he will be able to generate more options than if he states his problem as, "Should I buy a new car?" A second fact is that familiarity with the subject of the problem is a necessary prerequisite. A third important point is that one should create as many tentative solutions as possible. All of the ideas should be considered. Of course, alternative solutions to a problem are not infinite in number. A rational decision maker should select options that are meaningful, possible, and compatible with an acceptable solution. A fourth suggestion is that judging the options should be deferred until an adequate list of possible solutions has been compiled. Osborn (1979) has determined that when individuals adhere to the practice of deferring judgements, they generate almost twice as many good ideas as when they make judgements during the process of creation.

Let us return to Jim's transportation problem. He lists the following options: (Mechanic, 1988)

1. I can have my old car repaired
2. I can borrow a friend's car
3. I can use my Dad's car
4. I can drive to school with a friend
5. I can join a carpool
6. I can take a train or bus
7. I can use taxicabs
8. I can hitchhike
9. I can buy a used car
10. I can buy a new car
11. I can buy a bicycle
12. I can ask to borrow my employer's van
13. I can rent a car
14. I can change to a school nearer my house to which I can walk

Evaluating the Alternatives

After generating many possibilities, the decision maker must analyze them and retain only those that are feasible. Options that are unacceptable for one reason or another must be eliminated.

Jim considers the fourteen options he has listed. Borrowing a friend's car is not acceptable because his friend uses his car daily to travel to work. Using his father's car is not a solution because his Dad also uses his car on a daily basis. Jim could drive to Montclair with a friend, Joe. However, Joe comes to Montclair only on Monday and Wednesday and Jim has classes on Tuesday and Thursday as well. Joining a carpool would be unsatisfactory because there are times when Jim would be asked to provide the transportation. There are no buses or trains that have acceptable schedules. Taking taxicabs must be ruled out as being too expensive. Hitchhiking to school and work is too uncertain to be relied upon for daily commuting. Bicycling is out because a bicycle cannot be used in bad weather. Jim's parents will not permit Jim to borrow his employer's van. Renting a car must also be eliminated as being too costly. Changing schools is out of the question because only Montclair State has the courses Jim wishes to take. Jim has reduced his list of options to three: repair his old car, buy a used car, and buy a new car.

Considering Relevant Factors

After options have been reduced to a workable number, factors pertinent to each of them must be presented. These factors may be of various kinds. They may be consequences of the alternatives, desires, feelings, ethical principles, other value judgement, beliefs, scientific experiments, etc. At this point the problem must be classified as one that is simple enough to permit diagraming of the convergent and divergent reasons or one that requires more sophisticated assessment such as a decision matrix. A decision matrix involves listing the factors in support of each option, determining how each factor should be weighted, assigning a ranking number to each option, and constructing a decision chart.

Jim decides that a decision matrix is necessary to enable him to choose among these options. He lists the following factors as important ones to him and arranges them in order of desirability giving them numbers indicating that six will represent the most important factors and one the least important one. The factors as listed and numbers are: Cost 6, Dependability 5, Affordability 4, Cost of repairs 3, Influence on others 2, Pleasure 1. Weighting values are assigned by adding the order numbers and dividing by the total. Jim then gives a ranking number to each of the options for each of the factors considered.

Ranking Number

Purchase Cost	
New Car	1
Used Car	4
Old car repaired	6

Affordability	
New Car	1
Used Car	4
Repair old car	6

Dependability	
New Car	6
Used Car	3
Repair old car	2

Cost of Future Repairs	
New Car	5
Used Car	4
Repair old car	3

Influence on Others	
New Car	6
Used Car	2
Repair old car	1

Pleasure in Driving	
New Car	6
Used Car	1
Repair old car	1

He continues this for each factor. Using the aspects he has chosen the weighting factors, and the ranking numbers for each option, he sets up his decision matrix and calculates the weighted score for each option.

		Option 1 Buy a New Car		Option 2 Buy a Used Car		Option 3 Repair Old Car	
	Weighting Factor	Ranking Number	Weighted Score	Ranking Number	Weighted Score	Ranking Number	Weighted Score
Purchase Cost	.261	1	.261	4	1.04	6	1.57
Affordability	.217	1	.217	4	.87	6	1.30
Dependability	.217	6	1.302	3	.65	2	.43
Future Repairs	.174	5	.870	4	.70	3	.52
Influence	.087	6	.522	2	.17	1	.09
Pleasure	.044	6	.264	3	.13	1	.04
Totals	1.00		3.44		3.56		3.95

Figure 1

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[1] Based on a technique developed by Percy Hill, *Making Decisions* (Reading, Mass; Addison-Wesley Pub. Co. 1979), Chap. 8.

The option that received the highest score is: Repair old car.

Anticipating Adverse Consequences

Before implementing his/her choice, the thinking decision maker should anticipate possible adverse consequences of his/her choice. He/she must seek to avoid potential future problems. These consequences must be weighted in terms of probability and seriousness for each possibility. A second chart is then constructed. Jim calculates the consequences of his first two options.

POSSIBLE ADVERSE CONSEQUENCES

Option 2—Buy a Used Car	Probability	Seriousness	P × S*	Option 1—Repair Old Car	Probability	Seriousness	P × S*
Car may need repair	2	6	12	Undependable mechanic	5	8	40
Agency may not stand behind the car	6	5	30	Future Repairs	6	7	42
				Future Costs	7	8	56
				Need to rent a car	3	6	18
			42				156

* P = probability of occurrence
S = seriousness of occurrence

Figure 2

[1] Chart adapted from Kepner/Tregoe, *The Rational Manager* (N.Y. McGraw, Hill), p. 202.

On the basis of this table, Jim decides that his best alternative is: Buy a used car.

Implementing The Decision

Implementing a choice is not always a simple matter. It requires planning. Three steps are necessary, first, a plan must be conceived, second, difficulties and complications must be anticipated, third, difficulties must be eliminated. Only then can action be taken.

In terms of his problem, Jim must decide how much he wishes to spend. He must determine which kind of car will be most economical to use. Jim is also interested in which kind of car will need the fewest repairs. When he has successfully dealt with all of these issues, he can then decide where to buy the car of his choice.

Following Up

Despite the use of the rational decision making process, it is possible that the course of action chosen may not be the most advantageous. Consequences of one's actions should be watched carefully. Another option must be selected, if possible.

The suggested procedure strongly supports the belief that various thinking skills are related to each other by the process of decision making. Those who are good decision makers use analysis to identify and define problems. They use their creative skills when they generate options. They use critical thinking, logic, and dialectical reasoning to evaluate information, courses of action, and consequences. They bring all of these skills together in the process of problem solving. Informed decision making is an effective means to an end—helping students to learn how to think as they apply the strategies that have been indicated. As they work through a series of problems, students will learn more and more about the way in which each of the nine phases is performed and the way the sequence is used in the process. To achieve these ends teachers must focus on the process. They must help students to understand what is involved when they identify and clarify a problem, how appropriate alternatives can be generated, what is involved when options must be evaluated, and why action must be delayed until all aspects of the problem solving procedure have been completed.

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COLLEGE STUDENTS' PERCEPTION OF CRITICAL THINKING TECHNIQUES USED BY PROFESSORS

George S. Rotter and Barbara A. Richardson

The purpose of this study is to investigate what college students perceive to be the critical thinking techniques employed by their instructors. That is, which attributes and teaching strategies do students identify with professors who had the greatest positive impact on their ability to assimilate knowledge acquired in class and in the world in general. Likewise, which are the attributes and teaching strategies of professors who had no impact, or very little impact, on their ability to think critically.

It was during the 1800's that the importance of questioning and techniques for effective questioning were introduced (Fitch, 1901; Ross, 1860; Morrison, 1860). Methods textbooks for teachers particularly emphasized the need for specific use of thought-provoking questions to stimulate students' use of acquired knowledge (Betts, 1911; Charters, 1912; Hamilton, 1906).

Since these early studies, emphasis has been placed on specific questioning levels and skills. These are skills to be developed which would have a positive impact on student growth in using and verbalizing knowledge to the world. Once these skills are identified, alternative practices can then be applied in the classroom to enhance teaching effectiveness (Medley, 1979; Rosenshine, 1979). Wilen (1984) stated that if the development of ability to think is to be considered an important instructional goal, teacher educators need to stress to teachers the importance of devising a variety of instructional objectives that balance low level memory questions with pre-planned higher convergent and divergent questions.

Courses and seminars have been available to teachers for many years in order to demonstrate ways in which material can be presented in the classroom to help develop students' critical thinking skills. Udall and High (1989) found, with their investigation of students in a gifted middle school program, that students who were encouraged to think critically were able to verbalize their mental processes in response to questions.

Paul (1988) discussed the two conflicting theories of teaching, the Didactic and the Critical. He identified 21 techniques of teaching and described them in two ways, the didactic and the critical, for comparison. Paul states that the need to shift from the didactic to the critical is being recognized more and more as the research base for a critical theory expands.

This study is an exploratory investigation. There has been little research on how students themselves perceive critical thinking, and what they believe professors do to facilitate critical thinking. In an endeavor to find out what instructional procedures or techniques students in class identify as leading them to think critically, it was determined that perhaps the best way to find out is to simply ask the students themselves. Being an exploratory study, we avoided making specific predictions.

Method

Subjects: All of the 87 participants in this experiment were college students, male and female. There were 58 students from the School of Humanities and Social Sciences of which a high portion, 51 were psychology majors and 30 were from the remaining Schools. All were recruited on a voluntary basis in two psychology classes, the library, and the administrative office building. The level at which the students were enrolled in college classes varied from freshman through senior.

Materials A questionnaire was developed with two scales. The first asked the students to rate the one professor they had who did the most to encourage critical thinking among the students in their class. They made a similar rating of the one who fostered critical thinking the least. Each scale was from 1-9 with "1" being the most positive rating and "9" being the least positive.

A large area was left empty below each scale for a narrative description. In the first scale, students were asked to give specific and concrete examples of what the professor did in class that had the greatest positive impact on their ability to think critically and carefully and which would justify their high positive rating. In the second scale, students were asked to provide explicit descriptions of what the professor did to earn the rating as having the poorest impact on their ability to think critically and carefully. It should be noted that the students were urged not to identify either professor by name or gender. Following their descriptions of the professors' critical thinking techniques, students were asked to indicate some information about themselves, such as gender and major.

Procedure: The students approached by the experimenter were asked if they could spare five to ten minutes to fill out a questionnaire that was a research project for a psychology class. They were assured that the questionnaire would be kept anonymous.

If students asked what the research was about, the experimenter explained that he/she wished to find out if the students were exposed to critical thinking in any of their classes.

The students who offered to participate were given the questionnaires and told that the questions were self-explanatory. Also, they were encouraged to take their time in filling it out.

Results

Inasmuch as this is an exploratory investigation, our statistics should be looked upon as being descriptive rather then inferential. For that reason, statistical tests will not be presented.

Based on a content analysis of the students' narrative statements concerning their professors' critical thinking teaching techniques, both positive and negative, Dr. Rotter and I developed categories in which to place these statements. Conceptual terms were then composed for each category. There were six categories with 66 statements for the positive comments, and six categories with 63 statements for the negative comments.

For example, Category A., the positive comments section, "Probed Students," listed four items: 1. Asked us questions; 2. Probed us; 3. Made us react to materials; 4. Encouraged class participation. For the negative comments section, Category A., "Student Questioning," listed one item: 1. No class participation.

We reviewed the material twice in setting up the coding system to record the responses. (See Appendix B for complete list of categories and items). Each questionnaire was then coded for all the comments made. A grand total of 202 specific positive comments were made concerning the quality of critical thinking activities by professors. Since our major concern was on discovering which activities the highly regarded professors were engaging in to foster critical thinking in their students, we did not pursue an equivalent detailed analysis of the negative commentary.

Initially, Dr. Rotter and I worked independently in assigning the students' descriptions to the different categories. We then compared our judgments. There were some borderline decisions where students' responses could fit into different but similar categories. We discussed these responses and sometimes it became necessary to read into the statement the student's intent and meaning.

Some students made no comments, and some made more than five. The clear majority of students, however, made 1-3 comments.

It can be argued that in an open-ended questionnaire, the first comment made is the most important and relevant to the respondent. Therefore, in order to get a better picture of the proportion of critical thinking activities mentioned, we examined only the first comment made by each respondent. This eliminated the possibility of recording similar statements twice.

Overall, 37 percent of all the positive comments had obvious relationship to critical thinking activity. The remaining items mentioned had nothing to do with critical thinking. For example, for a positive comment in Category A., "Probes Students," a respondent stated that, "The professor used and encouraged class participation and class discussion rather than lecturing." For a non-relevant comment, a respondent stated that, "He made people feel comfortable with the subject." Several subjects simply said, "He taught critical thinking." Statements such as this might be attributed to the students not knowing what critical thinking is, or they had difficulty in articulating good examples.

As noted, the students were asked to rate their most proficient professors in using critical thinking techniques on a 9-point scale. A large number of them did check the "1," the most positive point on the scale. Nevertheless, a surprising number checked "5" and "6" (M=2.875) for their best professor, a so-so point on our scale. This seems to indicate that many students have difficulty in thinking of professors who utilize effectively critical thinking techniques.

On the other hand, a very large number checked the "9" (M=8.000) on the negative comments scale, suggesting they did not have difficulty thinking of a professor who did not use critical thinking procedures. From the students' perspective at least, when it comes to critical thinking teaching approaches, the poor professors seem to be dominant. From our small exploratory study, it would suggest that a survey of how often and how effectively faculty use critical thinking devices in their classes would be in order.

Discussion

In this investigation, students were not given a definition of critical thinking. Yet, the common thread within the comments, as a whole, related in many instances to Paul's examples (See Appendix C). For example, Paul's Statement #17, "That progressively, the student should be given increasing responsibility for his own learning. Students need to come to see that only they can learn for themselves and that they will not do so unless they actively and willingly engage themselves in the process," relates strongly to Items #3, 4, 12, 14, 15, 16, 17, 30. All of these items are comments in which the students are saying they became involved in class; they were encouraged to think independently and to look at alternative points of view.

It appears that many students do recognize and prefer critical thinking techniques in the classroom as opposed to the didactic method of teaching. The common thread within the negative comments was found in #11 and #25 which states, "No thinking; no critical thinking," and, "The instructor taught/read from book/notes," respectively. This seems to support Paul's Statement #13 (Scholastically Dominant Theory) which says, "That students need not understand the rational ground or deeper logic of which they learn to absorb knowledge. Extensive but superficial learning can later be deepened."

Many of the comments, both positive and negative, dealt with professor qualities in areas such as those who "Had a sense of humor," and instructors who were "Cold/impersonal/arrogant." Although these comments are not critical thinking statements, it might be argued that a comfortable, non-threatening environment created by the professor might allow for the employment of critical thinking devices and, hence, be conducive to better learning and understanding.

Because of the important generalities suggested by this study, a follow-up study of the way students perceive critical thinking as a teaching technique, but with a more concrete and identifiable model, would be merited. Indeed, the input by students of whether they are being stimulated to think critically could be of great value to professor. It could enable them to identify teaching techniques that work well and where change is needed.

A questionnaire could be developed based on Paul's conflicting theories. The items generated by the participants from our small study would be listed, and in a broader survey, students would be asked to respond to each of them as they apply to the their own experiences with a professor. Perhaps in this structured way a more comprehensive and meaningful analysis would be possible.

Paul, in his conclusion, states that the full development of a critical theory of knowledge, learning, and literacy is probably a minimum of 10 years into the future. A more definitive assessment of critical thinking as perceived by college students at this time might possibly contribute to the development of critical thinking theory in bringing it to fruition over the next decade.

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Appendix A

Montclair State College

1. From the time you have been at Montclair State, think about the instructor or professor who has has the greatest positive impact upon your ability to think critically and carefully about what goes on in class and the world in general.

Now rate that person on the scale below. Place a checkmark over any number that comes closest to your judgment about this individual. Check the descriptions below the numbers.

1	2	3	4	5	6	7	8	9
I learned a tremendous amount from this person on how to think critically.		I learned a great deal from this person on how to think critically.		I learned a fair amount from this person on how to think critically.		I did not learn much from this person on how to think critically		I learned virtually nothing from this person on how to think critically.

Please state in your own terms why you feel this person deserved the rating you made of her or him. Give very specific and concrete examples of what this professor did or how he or she taught which led to this evaluation. Since this is totally anonymous, put down any reason or reasons. Please, no professor name or gender. Do not write on the other side.

2. From the time you have been at Montclair State, think about the instructor or professor who has had no impact or the least impact upon your ability to think critically and carefully about what goes on in class and the world in general.

Now rate that person on the scale below. Place a checkmark over any number that comes closest to your judgment about this individual. Be sure to check the description below the numbers.

1	2	3	4	5	6	7	8	9
I learned a tremendous amount from this person on how to think critically.		I learned a great deal from this person on how to think critically.		I learned a fair amount from this person on how to think critically.		I did not learn much from this person on how to think critically		I learned virtually nothing from this person on how to think critically.

Please state in your own terms why you feel this person deserved the rating you made of her or him. Give very specific and concrete examples of what this professor did or how he or she taught which led to this evaluation. Since this is totally anonymous, put down any reason or reasons. Please, no professor name or gender. Do not write on the other side.

AFTER YOU ARE FINISHED ANSWERING THE ABOVE, PLEASE TURN THIS SHEET OVER.

Thank you for taking the time to answer this form. To help us put your answers in perspective, we would be most appreciative if you would answer the following questions.

1. Can you recall the department of the professor who added most to your ability to think critically? Which was it? (Do not name the professor)

2. Can you recall the department of the professor who added least to your ability to think critically? Which was it? (Do not name the professor)

3. What is your own major?

4. What is your college class? (Fr, Soph, Jr, Sr)

5. What is your gender? Male Female

Once again, we would like to thank you for your participation.

Appendix B

CODE SHEET FOR POSITIVE COMMENTS

A. Probes Students
  1. Asked us questions
  2. Probed us
  3. Made us react to materials
  4. Encouraged class participation

B. Made us think about issues
  11. Analyzed what we said
  12. Made us express our own views, think independently
  13. Made us think critically
  14. Made us look at alternative points of view
  15. Made us think about the world around us
  16. Encouraged us to ask questions
  17. Made us think about our own comments/questions

C. Style of Teaching
  21. Gave clear explanations
  22. Made students interested
  23. Treated us as individuals
  24. Did not teach from book; non-traditional
  25. Went outside class
  26. Reinforced positively student participation; involved students
  27. Small groups
  28. Talked dirty
  29. Made us feel comfortable
  30. Role playing

D. Instructor Qualities
  31. Sense of humor
  32. Instructor enjoyed the course
  33. Knew material well
  34. Dynamic
  35. Cared about students
  36. A nice person

E. Course content
  41. Used controversial material
  42. Presented alternate views on a topic
  43. Tied class material to real events, life
  44. Covered material thoroughly
  45. Taught the scientific approach
  46. Used good examples
  47. Taught us techniques to learn materials
  48. Taught relevant materials

G. Miscellaneous
  61. Good examination questions
  62. No answer
  63. Graded fairly
  64. I learned a lot about material
  65. Had a class picnic
  66. Learned a lot about myself

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PROFESSIONAL KNOWLEDGE

Professional Knowledge

This section presents papers with a focus on the professional development of teachers and professors. Programs in teacher education and in faculty development, are described. In addition, specific techniques and approaches designed for use within teacher education courses to improve teachers' understanding of the teaching and learning process are included.

In "Applications of Montclair State"s Thematic Teacher Education Program to John Goodlad's Reform Agenda," Robert Pines describes Montclair's participation as a member of Goodlad's network and the agenda toward the simultaneous renewal of the schools and teacher education. Pines examines five of Goodlad's postulates, or presuppositions, which relate directly to the critical thinking theme of Montclair's program, and describes the current efforts at Montclair to examine and reconsider its practices relative to the Goodlad postulates.

Susan Schwager, Tina Jacobowitz, and John Barell, in "The Pedagogy of Critical Thinking: Faculty Development at the College Level," describe a panel presentation and an activity illustrating an on-going faculty development workshop at Montclair toward encouraging critical thinking among students in classrooms across the disciplines

David S. Martin, in "Preparing Teachers of Thinking: A Model for Infusion" describes several national efforts to insure the inclusion of teaching for thinking within all teacher education programs. Among these are the AACTE resolution on the teaching of thinking and its special study group to share ideas and models, and proposed accreditation standards for the teaching of thinking. Martin describes a particulr model which divides cognitive skills among the various components of a preservice teacher education program, with attention to the application of these skills to classroom teaching, other professional teaching activities, and life experiences. Martin lists criteria for the selection or development of models for the infusion of teaching for thinking in teacher education programs.

Saundra McKee and Sylvia Stalker suggest the use of case studies to help prospective teachers develop critical thinking abilities in "Training Teachers as Problem Solvers through the Use of Case Studies." They describe the development of case studies by practicing teachers and the use of these case studies for problem solving with pre-service teachers. Although education textbooks are rich with practical examples, students reported that teacher-prepared case studies presented more useful material for analysis.

Gloria Paige presents a Skinnerian analysis of the problem solving process itself, and describes eight "thinking" behaviors that can be used in problem solving to maximize the likelihood that a problem solution can be found. In "Deciphering the Thinking Bhaviors that Occur during Problem Solving and Teaching Them to Prospective Teachers and Students," she describes a study in which problem solving behaviors were taught, and then "think-aloud problem solving protocols were recorded, analyzed and the data categorized. She concludes that the procedure is useful for classroom use.

Judith B. McDonald describes the processes she used in an open-ended interview study, reported elsewhere, in "The Use of a Conversational Approach in Teaching and Interviewing to Promote Thinking." The interview experience itself, she notes, may be used to discover meaning and understanding. MacDonald draws parallels between "invitational" verbal discourse in teaching and in interviewing.

Journal writing is recommended as a strategy in the development of critical thinking in prospective teachers. Ruth M. Loring, in "Metacognitive Implementation of Journaling: A Strategy to Promote Reflective Thinking," analyzed prospective teachers' journal entries for examples of meta-level thinking; in Perkins' terminology, "process control" and "bootstrap learning." She advocates teaching specific metacognitive questions to guide students in their thinking process.

Janey L. Montgomery and Joane W. McKay, in "Learning to Learn Skills" describe the learning skills objectives, the rationale for the objectives, and the classroom activities designed to develop learning skills that they created for the State of Iowa in "The Iowa Curriculum Guide for Learning to Learn Skills." Questions generated from the students' point of view" — metacognitive questions — guided their efforts. Skills such as self evaluation, monitoring attitudes, and organizing information were identified, and strategies developed for their infusion within eight content areas.

Myra Morris-Peo, in "Committing to Critical Reading: Critical Reading Instruction in Pre-Service and In-Service Education of Teachers," discusses teachers' need for instruction in teaching critical reading in context. She describes different levels of reading comprehension, from literal through elaborative. In critical reading, students are given the opportunity to evaluate the authenticity and accuracy of information, she notes.

In "Using Mneumonics and Visual Imagery to Facilitate Critical Thinking," Mary Ann Smorra encourages teachers to use such devices to assist in organizing and encoding information to store in long-term memory.

APPLICATIONS OF MONTCLAIR STATE'S THEMATIC TEACHER EDUCATION PROGRAM TO JOHN GOODLAD'S REFORM AGENDA IN *TEACHERS FOR OUR NATION'S SCHOOLS*

Robert Pines

In *Teachers for our Nation's Schools*, John Goodlad (1990) argues that programs for school renewal and reform efforts in teacher education should be closely connected. His proposal is logical and compelling in that one significant way to improve the schools is to improve teaching. Innovative schools, in particular, require like-minded compatibly trained teachers, and teachers who are prepared with that orientation require supportive school settings in which they are encouraged to practice and refine their skills.

In connection with the publication of the book, Goodlad's Center for Educational Renewal at the University of Washington has undertaken a national project which seeks to simultaneously strengthen the schools and teacher education programs. The project, *The Agenda for Teacher Education in a Democracy*, is also being sponsored by the Education Commission of the States and the American Association of Colleges for Teacher Education.

Montclair State and the fifteen school districts which constitute its "clinical schools network" have been selected as one of eight pilot sites in the nation to work toward the implementation of Goodlad's reform agenda. The other participating institutions are California Polytechnic State University, Miami University of Ohio, a South Carolina consortium (Benedict College, Columbia College, Furman University, the University of South Carolina and Wintrop College), Texas A&M University, the University of Washington, the University of Wyoming and Wheelock College in Boston.

As they are developed in *Teachers for our Nation's Schools*, Goodlad's suggestions for the renewal of teacher education are encapsulated in a series of presuppositions or "postulates." These are derived, in the first instance, from his conception of teaching as fundamentally encompassing four components. "The first two emerge out of the functions specifically assigned to schools: enculturation of the young into a democracy and inculcation of the disciplined modes of thought required for effective, satisfying participation in human affairs. . . . The other two components are intended to ensure the first two: a comprehensive grasp of pedagogy and of the values, knowledge, and skills to be brought to bear in the ongoing renewal of the schools in which teachers will spend their professional careers (Goodlad, 1990, p. 52)."

My colleagues and I will be addressing the full range of Goodlad's agenda for renewal. My more limited present purpose is to examine five of his postulates which bear directly upon the theme of the teacher education program at Montclair: critical thinking in teaching and learning.

An emphasis upon thoughtfulness inspires much of the content and process of the campus- and field-based components of our program (Martin, 1989; Michelli, Pines and Oxman, 1989: Michelli, 1989); including, in the latter case, a newly established Professional Development School. The philosophy and goal statements associated with teacher preparation at the College seek to set out a clear conception of teaching and learning in which professional roles, responsibilities, capacities and dispositions are organized around critical thinking as an educational ideal (Montclair State Institute for Critical Thinking, 1988; Barnes, 1991). In sum, they constitute much of the knowledge base for the program (Gideonse, 1989). There are fundamental commitments to students and teachers as rational and autonomous persons and to "communities of inquiry" as the context for intellectual exchange. Students are considered to be capable of giving and responding to reasons regardless of developmental level. Good teaching is held to be synonomous with good thinking, active learning and the transfer of critical dispositions and skills beyond the classroom.

I shall try to suggest the manner and degree to which our program currently reflects a number of the critical-thinking-related issues which Goodlad raises. The net result may be to establish a baseline against which my colleagues on campus and in the schools can assess our progress in this area during the period of our association with his national renewal network. There is no question that shortcomings presently exist. Indeed, our willingness if not determination to address deficiencies across the spectrum of Goodlad's recommendations, may have been a factor in our selection to participate in his project.

Analysis of Selected Postulates

"*Postulate Seven:* **Programs for the education of educators, whether elementary or secondary, must carry the responsibility to ensure that all candidates progressing through them possess or acquire the literacy and critical-thinking abilities associated with the concept of an educated person (Goodlad, 1990, p. 57).**"

Basic literacy is a cornerstone of the undergraduate program at Montclair State. Accordingly, most of the programmatic initiatives which have been taken to address it apply with equal force to those who are pursuing teacher certification and those who are not. It is the policy of the College to require all students who are granted admission to demonstrate proficiency in writing, reading, mathematics and speech. The New Jersey College Basic Skills Placement Test is administered for that purpose. Students who receive less than satisfactory scores in one or more sections of the test are required to enroll in remedial courses in writing, mathematics and reading. These courses must be satisfactorily completed during the freshman year. Candidates for teacher certification do not make application for admission to the program until their sophomore year.

Beyond basic skills testing and remediation, the 58-credit General Education Requirement at the College combines the strength of the liberal arts curriculum with a contemporary approach to social and technological change. The GER is designed to impart not only information, but techniques of problem solving and analytical thinking. In that regard, a principal goal of our Institute for Critical Thinking is to promote attention to both the theoretical aspects of critical thinking and their implications for teaching and learning at the college level (Montclair State, 1990).

Contrary to Goodlad's conviction, we do not widely prescribe specific GER courses for students in the teacher education program, nor do we systematically integrate those courses with those in the professional curriculum which focus on pedagogy. Those issues are discussed in connection with the next postulate.

As already noted, for those students who are admitted to the teacher education program, an emphasis upon critical inquiry becomes thematic. They are encouraged to seek a deeper understanding of information by making judgments that rely on criteria and are both sensitive to context and self-correcting (Lipman, 1988). Within their own discipline, in particular, our students are asked to decide which thinking processes and skills are necessary for understanding; which concepts, ideas and processes are worth thinking about and most readily transfer to life issues; and how to determine "the problematic" (Barell, 1991). As their decisions promote a greater understanding of the processes of inquiry, dialogue, and criticism within their separate disciplines, our students may be better able to evoke deeper levels of literacy in their own classrooms (The Holmes Group, 1990).

Finally, our teacher candidates are taught to be metacognitive, this is, to plan, monitor and evaluate their own thinking, and they are encouraged to cultivate the dispositions which support critical thought. Accordingly, during the culminant student teaching experience, supervisors use a "cognitive coaching" approach (Costa and Garmston, 1985) which is designed to support teacher self-analysis and decision making.

***"Postulate Eight:* Programs for the education of educators must provide extensive opportunities for future teachers to move beyond being students of organized knowledge to become teachers who inquire into both knowledge and its teaching (Goodlad, 1990, 58)."**

This postulate is a companion to the previous one, especially as it mandates subject matter knowledge and insight into one's discipline. My colleagues and I agree both with Gidionse (1989), when he suggests that a prospective teacher's subject-matter grasp must often exceed that of the non-teaching major, and with Goodlad (1990) when he broadens the notions of literacy and disciplinary discourse to the level of the "human conversation."

Gidionse proposes, for example, that beyond mere content, the fledgling biology teacher ought to be able to relate his discipline to the differing ability levels and learning styles of his students. Moreover, in his view, he or she must be familiar with the materials available for teaching biology and must know the content-specific (versus generic) instructional methods for that discipline, e.g., how to teach mitosis.

These, of course, are issues addressed in our disciplinary methods courses as they are taught in the various academic major departments at the College. To some degree, they also surface in other courses in the professional curriculum with a methodological focus like "Teaching for Critical Thinking" and "Reading in the Content Areas."

Yet, (as I assume Goodlad would recommend), we have been unable or unwilling to make connections between the disciplinary and generic courses to both tease out the one kind of method from the other and examine instances of compatibility. I have already acknowledged that the disciplinary and pedagogical connectedness which Goodlad seeks is even less present in our program at the level of the General Education Requirement. He suggests, for example, that students in a seminar jointly taught by an historian and a professor of pedagogy could actively inquire into the ways of teaching which derive from that discipline. In that context, he asks: How does a teacher "help students draw from the particulars of a time and a place principles of historical analysis that would help them in studies of other times and places (Goodlad, 1990, p. 58)?" An examination of the prospects for providing such opportunities for students at Montclair State should be a part of both the programmatic re-assessment we are about to undertake in teacher education and the planned review of the General Education Requirement.

"*Postulate Ten:* Programs for the education of educators must be characterized in all respects by the conditions of learning that future teachers are to establish in their own schools and classrooms (Goodlad, 1990, p. 59)."

Given the pervasiveness of the critical thinking theme in teacher education at Montclair State, this postulate poses a significant challenge to each of us who teach in the program. We must be prepared to model the instructional policies, procedures and materials which we advocate for use by our students. Perhaps most necessary in that connection is the demonstration of instructional strategies which actively engage our students in inquiry and deliberation. John Dewey (1965) taught that knowledge and experience are not synonomous. One acquires knowledge as one processes experience. Only as our students are regularly made to critically examine issues and assumptions, explore alternative positions and practice and support their own claims with evidence and good reasons, will they carry those habits of mind and the related pedagogical skills into their own classrooms.

We, their teachers, must, as consistently as possible, eschew teaching models which are constructed upon the *transmission* of information in favor of those which depend more upon a *transactional pattern* for their effectiveness. Lecture-dependent instruction, in particular, should be re-examined to the degree that its encourages student passivity. Oxman (Benderson, 1990) has pointed out that lecturing depends for its effectiveness upon students listening "actively and critically, setting up a kind of dialogue in their minds by questioning and analyzing what the professor was saying as the lecture was being given (p. 7)." In her view, students do not, in the main, react in that fashion, preferring instead to reproduce the content of the lecture in their notes. She advocates the use of collaborative-learning groups in which students can learn from one another as an alternative to the lecture format.

Indeed, there are numerous options to the transmissional model of instruction, e.g., case diagnosis, problem analysis, simulation and role playing, group investigation, seminars, inquiry methodologies, tailored projects and non-directive teaching models (Joyce and Weil, 1986). I should add that *discussion* is, of course, a primary model of interactive instruction. Arthur Combs's (1965) "Learning Group" design for classroom discussion is specifically intended for use in preparing teachers (Pines, 1972).

In my view, Goodlad's tenth postulate raises a very basic question for teacher educators, and for that matter, for all teachers who aspire to actively engage their students in learning: Are we prepared to sacrifice breadth of content coverage in the process? My own answer is a firm "yes." I believe we can take inspiration from Ted Sizer (1985) and his colleagues who have built their respected Coalition of Essential Schools, at least in part, upon the instructional principle that "less is more." Grant Wiggins (1989) cautions about the futility of trying to teach everything of importance to our students. For novice teachers, one or two models of classroom management, deeply understood, may be more operationally useful than a dozen or more "covered" in the same course.

In that connection, the widely respected Dean of the Peabody College at Vanderbilt University, Willis Hawley (1990), has proposed the seemingly radical notion that the basic purpose of preservice teacher preparation should be the development of the capabilities and the motivation to learn to teach, rather than the development of teaching competence. He is convinced that the development of competence should be the responsibility of the schools and presumably, those responsible for professional development in that setting. Perhaps Hawley's position should guide some part of the discussion we undertake with our collegues in the clinical schools network in connection with the Goodlad project.

I would like to raise one additional issue in connection with this postulate. The establishment of the Harold A. Wilson Middle School for Professional Development by the College and the Newark School District, (Oxman, 1991) represents, in my view, an approximation to the ideal clinical setting in which to prepare beginning teachers. The emergent Professional Development School concept is not unlike the teaching hospital model. It is particularly distinguished by a commitment to *inquiry in action* (Levine, 1988; The Holmes Group, 1990). Novice, and for that matter, experienced teachers, can be assisted in the interpretation and application of theory, concepts, and technical skills in real classrooms, and in the analysis of the results. It is in the setting of the P. D. S., I believe, that we can come closest to establishing the conditions for *active learning* in teacher education programs that in Goodlad's terms, we want future teachers "to establish in their own schools and classrooms."

"*Postulate Fourteen:* Programs for the education of educators must involve future teachers not only in understanding schools as they are but in alternatives, the assumptions underlying alternatives, and how to effect needed changes in school organization, pupil grouping curriculum, and more (Goodlad, 1990, p. 61)."

The statement of goals for the teacher education program at the College (Montclair State Institute for Critical Thinking, 1989) reflects, among other intended outcomes, the preparation of beginning teachers who value critical thinking and who possess the knowledge and skill to infuse it into their curricular and instructional efforts. That goal represents a commitment to change in schools in which an absence of opportunities for critical thinking contrasts strikingly with the contributions of rational thought to the quality of life in a democratic society. Through the vehicle of the clinical schools network, it is implemented through course work and field experiences for our students, and by means of professional development programs for our clinical adjunct faculty. The latter are held on campus and in the schools. Our change agents, if you will, are our students and their school-based mentor teachers. A "turn-key" model by which our clinical faculty train their own colleagues, characterizes our work in the schools.

Our goal, then, is to assist in reforming and revitalizing the curricular and instructional dimensions of the schools in which our students do their clinical work and in which they are employed. Although our focus for change is admittedly curricular, it has broader implications for change in the school environment such as the use of time and space, materials selection, evaluation strategies and, as discussed with respect to the previous postulate, the interactive pattern of the classroom.

Our commitment to change in the schools notwithstanding, two significant elements of this postulate are not sufficiently present in our program. The first is an emphasis on stewardship. I do not believe that we are preparing teachers who are imbued with the sense of responsibility to renew the schools which Goodlad intends. We will need first to purposefully propose and define that role for our students, and then to prepare them to assume it. We can be guided by the content and process of courses we now teach exclusively at the graduate level like "Strategies for Change."

We should also be able to provide our students with related experiences in the schools. They should be more fully integrated into the life of the schools in which they do their clinical work, and those schools should be settings in which teachers are assuming some degree of stewardship. In current parlance, they should be schools in which something akin to "restructuring," "shared decision making" or "site-based management" is being undertaken. This is the case in some of the districts which constitute our clinical schools network, including the Newark district in which our Professional Development School is located. I believe that the placement of student teachers in a school which is itself undergoing renewal, will do much to engender a sense of professionalism and mission with respect to school renewal.

"Postulate Fifteen: **Programs for the education of educators must assure for each candidate the availability of a wide array of laboratory settings for observation, hands-on experiences, and exemplary schools for internships and residencies; they must admit no more students to their programs than can be assured these quality experiences (Goodlad, 1990, 61)."**

The teaching for critical thinking theme in our teacher education program, which requires elaboration in its field-based or clinical components, has lent impetus to a deeply held conviction that the schools be brought into greater partnership with us in the preparation and professional development of teachers. Our school-based colleagues have to be familiar with the theme, support it, and relate it both to their classroom practice and their work as mentors for our students.

In each school district, teachers are invited to apply for formal appointment at Montclair State as "clinical adjunct faculty." After screening in both the districts and at the College, 150 teachers have been appointed to date. Formal appointment brings with it campus privileges and necessitates participation in paid and credit bearing professional development sessions on teaching for critical thinking and the related supervision of student teachers. John Barell of our Department of Curriculum and Teaching and Tina Jacobowitz of Reading and Educational Media have worked with a steering committee of clinical adjunct faculty to design and facilitate these sessions.

In addition to working as mentors for our students, clinical adjunct faculty are co-instructing courses on campus and conducting special supervisory assignments in the schools normally carried out by campus-based adjuncts. They have also teamed with college faculty in conducting programs on teaching for thinking skills in their home districts. Patty Caruso, Mary Lou Knodle and Judy Merz in the Cedar Grove district have devised and implemented an original model for that work.

This fall, Terri Fryer, the social studies coordinator at Verona High School and a clinical adjunct, received a half-time appointment to teach regularly in our Department of Curriculum and Teaching. Ms. Fryer, an Essex County teacher of the year, is the first clinical adjunct to be associated in that manner with our teacher education program.

Our successes in the clinical schools network do not to date reflect the provision in this postulate which warrants placement within it for *all* students admitted to the program. Increases in program enrollment and the exigencies of the placement process itself, make it necessary for us to use mentor teachers in non-network schools. In such cases, we can not assure the quality of clinical experience available to our students in the network schools. For that reason, we may have to confront the prospect of limiting enrollment in the teacher education program at Montclair State.

Goodlad's recommendations touch on many dimensions of teacher education. Again, I have only addressed those to which applications from the critical thinking theme of the program at the college can be made. Indeed, I have not done justice to each of those postulates. Several which I have not discussed will depend to some extent for their implementation upon critical thought, e.g., the moral and ethical demands of teaching; the reconciliation of theory and the wisdom of practice.

The totality of the Goodlad agenda will be addressed at the College in a process which is described elsewhere in this issue of *Inquiry* by Dean Nicholas Michelli (1991), the certification officer at Montclair State. I welcome what I fully expect will be an uncommonly rigorous experience as an opportunity to collaborate with my campus- and school-based colleagues in advancing the renewal of teacher education and the schools.

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THE PEDAGOGY OF CRITICAL THINKING:
A Workshop on Faculty Development

Susan Schwager, Tina Jacobowitz, & John Barell

Panel Members: John Barell and Tina Jacobowitz (Workshop Coordinators); Joan Bernstein, Bob Browning, Anne Marie DiLorenzo, Peter Macaluso, and Susan Schwager (Faculty Participants)

Overview

A panel discussion with audience participation was conducted that focused on teaching for critical thinking in the context of specific disciplines. Panel members described their involvement in an ongoing workshop at Montclair State on the Pedagogy of Critical Thinking. The panel presentation was followed by an activity in which the audience participated that illustrated the work of the Montclair group. Audience participants were given a piece of text and working in small groups, were asked to identify ways in which the content could be presented that would encourage students to think critically. This exercise was followed by a discussion of the issues and problems related to supporting ongoing faculty development activities.

Description of Activities

The panel presenters described their participation in an ongoing faculty development project that is intended to assist participants in their efforts to encourage critical thinking among the students in their classes. Panel members described activities that they considered most useful in helping them improve their teaching. The activities of value as identified by participating faculty include: periodic meetings in which discussions centered on process (teaching strategies and techniques) as well as content (ways of determining what's worth thinking about in the different disciplines). Intensive work by project coordinators with individual faculty has also been conducted. This work includes periodic live observations of lessons, analysis of videotaped lessons, and goal setting for subsequent lessons with follow up evaluations. Faculty have also engaged in peer observation activities as a way of gaining insight into the effectiveness of their own teaching. The peer teaching activities consist of pairing of faculty members from different disciplines and having these faculty members observe and critique each other's teaching.

Following the presentation, those in attendance at the session were invited to participate in an activity that illustrated one way in which the group works to identify teaching techniques that will encourage students to think critically. A piece of text describing the origin of the Crusades was distributed, and participants were asked to think of ways to present the text to students to encourage critical thinking. After having an opportunity to exchange ideas in small groups, participants shared their ideas with everyone in attendance. Some of the ideas presented included having students role play experiences of the different individuals affected by the Crusades (eg. the men called to fight, the wives and children left behind). It was also suggested that students be challenged to identify reasons that would be sufficient for each of them to fight for a cause, and examine their thinking in light of the events that triggered the Crusades.

Issues Raised

The workshop session was concluded by a discussion of the issues and problems related to supporting ongoing faculty development of this type. Although the focus of the activities on improving students' abilities to think critically in the different disciplines is supported throughout most institutions, it is often difficult to get the kind of support necessary for faculty to engage in such ongoing faculty development activities. One of the most important issues seems to be whether faculty should be compensated in any way for participating in activities designed to improve their own teaching. There are some who feel that on-going improvement efforts are part of one's job as college/university faculty and therefore, compensation is inappropriate. Others feel that the kinds of faculty development activities described here go beyond the normal expectations of the faculty role, and represent an extraordinary commitment to improvement and excellence. Individuals who favor compensation feel that college/university faculty responsibilities are extensive, and providing released time or stipends to faculty committed to these self improvement efforts that go beyond customary role expectations is crucial for the encouragement and support of these activities.

Susan Schwager and Tina Jacobowitz are Associate Professors, John Barell is Professor at Montclair State.

PREPARING TEACHERS OF THINKING: A MODEL FOR INFUSION

Dr. David S. Martin

A Short History of Teacher Education and Teachers of Thinking

Many teacher education programs have taken seriously the mission of preparing teachers to teach for thinking in terms of incorporating challenging questions and certain special activities in the classroom. However, preparing teachers to teach thinking as an *overt* part of the curriculum or how to teach students to explicitly focus on their own mental processes has not been a regular part of the teacher preparation curriculum.

Beginning in the early 1980s, the Association Collaborative for Teaching Thinking (ACTT) was formed, consisting of representatives of numerous professional organizations in education, and among them was representation from the American Association of Colleges of Teacher Education (AACTE). This representation was one of the first formal recognitions by the teacher preparation community that the teaching of thinking is important. Representatives of AACTE were among those developing a set of standards for the preparation of teachers of thinking, which is now available from the author; the standards propose that the National Council on the Accreditation of Teacher Education assess teacher preparation programs for the explicit degree to which their programs prepare teachers in five areas:

1. The teacher and the teacher educator who effectively teach thinking will demonstrate an attitude of thoughtful consideration of the problems, topics, and issues of their professional experiences.
2. The teacher and teacher educator indicate that they have an active working knowledge of the methods of effective inquiry utilizing all levels of thinking.
3. The teacher educator and students in the teacher education program demonstrate skill in applying the methods of inquiry to classroom teaching.
4. The teacher educator and the teacher trainee provide repeated explicit opportunities for their respective students to reflect on, analyze, and apply higher-order thinking operations to real world issues and problems, as well as to subject matter.
5. Teacher education institutions maintain an actively supportive climate which promotes the exercise, application, teaching, and learning of thinking dispositions and cognitive operations.

To date NCATE has not adopted those proposed standards.

In the Fall of 1987, the AACTE then called together special task force to discuss directions for the Association in regard to the preparation of teachers of thinking; this meeting brought together 12 persons representing Psychology, Teacher Education Faculty, and other related fields. One result of that meeting was a co-sponsored conference involving 65 teacher educators in early 1988, who examined possible models for including thinking skills programs as a part of the teacher educator program.

Later in 1988 a full one-week seminar took place for teacher educators representing eight different institutions, to look in-depth at models for program revision and course revision in teacher preparation programs; this seminar was a part of a larger annual institute at the University of Massachusetts at Boston, on the general thinking skills theme. From this event the beginnings of a mail network resulted, as well as a special Resolution for the entire AACTE organization.

That resolution, calling for all programs in teacher education to incorporate preparation for teaching thinking, was passed by a large margin at the 1989 Annual Conference of the AACTE. Parallel to that event was the proposal and implementation of a Special Study Group within the AACTE to enable interested institutions of teacher preparation to exchange ideas and models on the implementation of thinking skills within teacher education. That study group now meets annually at AACTE Conferences.

Cognitive Education and the Teacher Education Knowledge Base

One of the above-mentioned five proposed standards for the NCATE relates to the knowledge base in teacher education. We now know a great deal about the ways in which children improve their cognitive skills, as well as the pedagogical techniques which are most likely to promote thinking in students. For example:

1. Asking questions that demand "why" and "how" responses.
2. Identifying the specific strategies used in solving a problem and labeling those strategies (metacognition).
3. Reflecting with students explicitly on the cognitive processes used to solve a problem.
4. In the context of regular subject matter, reminding students of cognitive strategies which can be applied.
5. Setting an appropriate "disposition" for thinking in the classroom by establishing an acceptant tone during classroom discussions.

In addition to this body of research is a separate but related body—the investigation of teaching itself as a cognitive activity. The work of Morine-Dershimer (1982) established methods for researching the thinking of teachers. For example, the need for the teacher to diagnose the cause of student difficulty and to prescribe beyond trial and error was observed by Carbone (1980); in addition, Renner (1975) demonstrated positive cognitive growth in teacher trainees as the result of pre-service training in methods of teaching science using well-structured reasoning activities.

Clark and Yinger (1979) and others have studied teaching as a cognitive activity; Clark and Lampert (1986) provide an excellent summary of those aspects of the research on teacher thinking which belong in the knowledge base for teacher education. The work of Peterson (1988) conceptualized how teacher and student cognition and knowledge can mediate effective teaching. We have seen a call for a "paradigm shift" in research on teacher education (Shulman, 1986), away from the process-product approach and towards a cognitive paradigm which examines the effects of the thinking and decision-making that teachers do while interacting with students (Clark and Peterson 1986; Peterson, Swing, and Stoiber 1986).

Therefore we have evidence of a growing place for cognitive education within the knowledge base segment of teacher education.

A Model

But knowledge about cognition is not sufficient for preparing active teachers of thinking. The infusion of thinking skills must cut across the teacher education curriculum into not only course work, but also practicum work as well.

A possible model, now being tested, would first require faculty development of the teacher education faculty in a systematic program of cognitive skill development. Following that stage, each of the components of the teacher education program (foundations, curriculum, methods, and practicum) would share the responsibility for incorporating certain particular cognitive skills. For example, using the Feuerstein (1978) Instrumental Enrichment approach to cognitive enhancement, the foundations courses in educational psychology would emphasize not only the knowledge base about cognition, but would also teach the cognitive skill of analysis since that skill is applicable on an adult level to the diagnostic activities which a teacher must carry out. On the other hand, a course in curriculum would, among other emphases, teach future teachers the skills of logical reasoning as applied to different theories about curriculum. In the practicum experience, explicit cognitive focus would be on synthesis and the application of a variety of cognitive skills by expecting student teachers to incorporate them in the context of their own lesson planning.

In each course in the teacher education program, then, some segment of every alternate class meeting would be devoted to the following routine:

1. Instructor introduces a brief activity practicing a particular cognitive skill, e.g., categorization.

2. Class discusses possible strategies for solving the cognitive problem.
3. Teacher education students work individually or in pairs to find solutions, while instructor helps students having difficulty.
4. Instructor discusses what the group members have learned in general about the mental processes needed to solve these problems (metacognition).
5. Instructor and students brainstorm and list ways that those processes apply to (or "bridge" to) the daily demands of teaching, as well as how those processes would be explicitly taught to children.

To illustrate the above sequence, in a curriculum course, one cognitive activity would involve comparison by finding the most exclusive labels for the similarities between certain objects. The class completes several related exercises and discusses the strategies they used. Then, instructor and students "bridge" to the idea that a teacher must apply that same skill by carefully comparing and labeling the diagnosed needs of pupils before deciding to subgroup them for instruction—thus, the "bridge" for that day.

Activities would also be followed by a discussion for insight into how some particular cognitive skill would then be applied to:

- Teaching *children* the same skill within the school subject matter.
- Professional teaching behaviors such as lesson planning and materials selection.
- Life or "outside world" activities such as finding a professional job.

Figure 1 presents this model for including cognitive elements *throughout* the pre-service teacher education program. If cognitive activities are included regularly in each pre-service course and then applied during the practicum setting, no single course instructor bears the entire responsibility for cognitive infusion.

Implementation

The model in Figure 1 integrates these skills into all components of a teacher preparation program (foundations, methods, and practicum) as well as in the liberal arts foundation, and indicates that these skills are taught and reinforced at several points in the teacher education curriculum. This integrative model, therefore, does not involve adding any single course. Instead, it requires the following implementation steps:

1. Preparing teacher education and liberal arts instructors in the methods and materials of cognitive education, and orienting practicum supervisors to the

rationale for cognitive education.

2. Orienting cooperating teachers to the rationale and methods of cognitive education before the student teacher's arrival, and selecting cooperating teachers who are excellent teachers of thinking, as models to be emulated.
3. Reaching agreement among teacher education faculty members about which generalizable cognitive skills each will emphasize in his or her course work in a complementary fashion.
4. Allotting a segment of every alternative class meeting in courses to a cognitive skill activity and discussions about how that skill would be applied to the course topic, the school curriculum, and/or to professional and personal life. Cognitive activities would focus on such areas as: planning, analysis, identifying problem-solving strategies, breaking egocentricity, categorization, comparison, relating cause and effect, logical thinking, synthesis, and more.
5. Requiring each teacher education student during student teaching to teach cognitive skills to children on a regular basis.
6. Assessing, through college supervisors' ratings, the student teachers' applicationof systematic thinking to their planning, interaction, analysis and evaluation.
7. Reinforcing the use of cognitive education methods during the student teaching seminar by discussing successes and problems in the teaching of cognitive skills to practicum children, and discussing other insights gained from applying those skills to the student teachers' own professional and personal lives.
8. Assessing program graduates by follow-up surveys to determine the extent to which this specialized component has or has not affected their on-the-job professional performance, in comparison with prior graduates of the same teacher training program.

This model clearly requires an unusual professional commitment of time and energy by teacher education faculty members. However, the results of pilot work with this model, in addition to national concern about the quality of teacher performance, indicate that such a model needs to be implemented now.

Adopting a Model

In the adoption of any model for the infusion of higher-order thinking skills into any teacher education program, we should consider existing models of cognitive instruction that have been developed for *school* programs. Many can be adapted to teacher education programs, but any such model must also have several characteristics. The model must:

1. *Have a strong, theoretical basis.* A model that consists only of strategies cannot serve the program well, since a strategy-based approach alone leaves the professional without a foundation when particular strategies do not succeed. A strong theoretical basis, however, allows the professional to return to that basis to develop new or revised strategies.

2. *Have been empirically tested.* A model that has a record of successful implementation with children, based on some empirical reporting, is far more likely to have the substance that will lend itself to infusion in a teacher education program than one which has not had that record. In addition, such a basis can then serve as a point of departure for further research by teams of teacher educators and teacher education students working together.

3. *Be comprehensive.* A model which focuses on a *wide variety* of cognitive skill areas is preferable because the inclusiveness of an entire range of cognitive skills will be assured; in addition, a complete set of connections between the model and the various components of the teacher education program will also be enhanced.

4. *Acknowledge that cognitive change is gradual.* [illegible] published thinking skills programs promise rapid changes in achievement. Curricula that incorporate cognitive instruction must rest on the notion that affecting the potential of a learner is an incremental process, and future teachers need to understand that there cannot be a "quick fix" when working to significantly enhance the cognitive potential of any learner.

5. *Cut across multiple areas within the program.* Although it is administratively far easier to simply attach a course named, for example, "Thinking Skills," and leave the remainder of the teacher education program intact, no lasting impact will result from that approach. Future teachers in that arrangement would receive a "message" from such an action that thinking skills can be compartmentalized both in life and in their own classrooms, when the opposite in fact must be the case. Far more challenging but far more important is the infusion that cuts across multiple areas of the program.

6. *Involve Faculty Development.* The newness of incorporating higher-order thinking skills into the teacher education program mandates that there be a systematic period of faculty development for both the teacher education faculty and the arts and sciences faculty. Faculty development would occur in regard to the theory, pedagogy, and research related to cognitive instruction, with guidance and explicit attention as to

how to infuse those elements into their own courses or programs. There can be no changes in the teacher preparation curriculum without changes in instructors.

Next Steps

In addition to the development of full programs in the teaching of thinking within entire teacher preparation curricula, individual teacher education faculty must also take measures within their own courses to foster the teaching of thinking as well. For example, some components would include the following:

1. Broaden course objectives to include an overview of cognitive theories and certain higher level cognitive skills which are relevant to the discipline of the course (e.g., in a course on the philosophy of education, one course objective could become the ability to take a position on an issue and defend it logically in front of one's peers).
2. Build into the activities of the course a number of activities in which students identify some relevant cognitive skill (such as logical defense of a position), apply it during the course, reflect on the cognitive strategies used, and discuss specific techniques for applying those strategies to teaching children.
3. Include in the course the view of the structure of the discipline as well as its content.
4. During the activities of the course, employ higher-order questioning during all class discussions, and discuss the consequences of such strategies.
5. Connect those activities with parallel observation experiences in school classrooms: for example, in the philosophy of education course if one skill is defending a logical position, then when students observe in the school classroom, they would observe for the ways in which the cooperating teacher asks children to defend their positions in discussions.
6. Revise course assessment tools to include not only memory and comprehension of course ideas, but also higher-level analysis, reasoning, and manipulation of course ideas.

In addition, we propose that teacher educators make it a part of their professional agenda to offer assistance to teacher education programs through partnerships between school professionals who are experienced in thinking skills education and their university teacher education programs.

Conclusion

The business of developing a nation of thinkers cannot be left only to parents, or the workplaces or today's in-service teachers. Only by systematic infusion of cognitive education across the program for preservice teachers can we with any certainty ensure that the next generation of students graduating from our schools will have a high probability of being problem-solvers who are open, flexible, able to generate defensible multiple solutions to difficult societal challenges, well focussed, and autonomous.

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Figure 1

A Model for Cognitive Skill Development in Teacher Education Programs

PROGRAM COURSE COMPONENTS	COGNITIVE SKILLS										
	Projecting Visual Relationships	Comparisons	Analysis	Developing Instructions	Categorization	Temporal Relationships	Cause-effect Progressions	Hierarchical Relationships	Logic	Synthesis*	Other higher level cognitive activities for courses
I. Liberal Arts											
The Arts	X		X							X	Visualize patterns
History		X	X			X				X	Identify progressions and sequences
Literature	X		X		X						Analyze the structure of written works
Physical Sciences							X	X	X		Develop and test hypotheses
Social Sciences				X	X		X				Examine patterns of behavior
Mathematics		X	X						X		Develop logical proofs based on defensible assumptions
II. Foundations of Education											
Philosophy	X		X						X		Develop and understand a philosophy
Ed. Psychology	X	X	X								Relate child development to instruction
Curriculum			X					X		X	Develop a theory of instruction
III. Methods of Instruction											
Subject Areas			X		X		X				Select and develop variety of methods
Media		X		X							Select and develop appropriate materials
Exceptional Children		X		X			X				Adapt instruction for special needs children
IV. Practicum											
Observation	X					X		X			Analysis of school structure; analysis of classroom behaviors of pupils
Teacher Assisting				X	X	X	X		X		Diagnosis of pupil needs; selection of appropriate materials and methods
Student Teaching				X		X	X		X	X	Lesson sequencing; pupil evaluation; identify and teach skills, content, and critical concepts to pupils

*Adapted from Feuerstein, R. ([illegible]). Instrumental Enrichment. Washington, D.C.: Curriculum Development Associates

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TRAINING TEACHERS AS PROBLEM SOLVERS THROUGH THE USE OF CASE STUDIES

Saundra McKee and Sylvia Stalker

The desires to infuse reality and to provide opportunities for decision making and problem solving in teacher education programs have sparked a renewed interest in the potential of case studies as an instructional tool. Kowalski, Weaver, and Henson define a case study as "the entire process of collecting and reporting data," and case method as "the use of case studies for instructional purposes" (p. xi). They cite enhancement of several higher level thinking skills and exposure to the complexities of organizational life as positive outcomes of this highly participatory form of learning. Their promising work, along with that of others (Plante, 1987; Merriam, 1988), has encouraged other teacher educators to develop, use and evaluate cases in their own unique institutional settings. This article describes two individuals' efforts to provide students with insights into the nature of teaching in both rural and urban schools through the use of case studies.

Background

Clarion University of PA, part of the State System of Higher Education, has over 6,000 undergraduate students. The university is located over eighty miles from any major urban area; signs of its remoteness are the facts that we can only receive the *New York Times* a day late by mail and National Public Radio is accessible only with elaborate antenna. Our students come from the surrounding rural areas primarily, and although they may not identify the *Times* or NPR as indicators, they are aware of their lack of knowledge of urban issues and other regions of the country. They know, too, that chances are great that their beginning jobs will be found in urban areas, most likely outside Pennsylvania.

While our students have virtually no knowledge of the nature of urban schools, like many people in the United States, their visions of rural schools tend to be idyllic. Many of these rural students are the first members of their family to attend college. They are unaware of the realities faced by rural teachers. Professional isolation, low salaries, lack of resources and support personnel, nepotism and sexism often represent challenges that those students determined to teach in rural schools have never considered.

Our education majors are eager to learn about the "real world," as they would call it. It's not uncommon for 50 to 60 students to come to an evening talk given by teachers from the Pittsburgh Public Schools. Our secondary education students appreciate a one day field trip to visit a large Pittsburgh high school—even when it requires leaving campus at 5:30 a.m.! They have more than their share of lectures and textbooks; they're hungry for reality.

The demand for increased and earlier field experiences for our students poses a constant challenge. Assignments requiring classroom observations and interviews with teachers are scattered throughout our program's first three years, but these typically involve returning to a student's hometown school over a vacation period. Not until the semester before student teaching do students systematically spend time in schools. The obstacles for early field experiences are not easily overcome. Schools in our area are small, our students are numerous, and an attitude prevails that an observation visit from students represents an interruption in the classroom. Field trips to urban schools, where four or five observers in a classroom may not even be noticed, are costly and inconvenient. The case studies represent an effort to address students' need to be in touch with "real world" classrooms.

One bridge to providing that reality has been the programs in Rural and Urban Education sponsored by the Pennsylvania Academy for the Profession of Teaching for faculty from both higher and basic education. The Rural Fellows program created opportunities for educators to attend conferences on rural education and to participate in a teacher exchange. In the exchange, professors taught in public school classrooms and elementary and secondary teachers taught university methods classes. A similar program took place on urban education where workshops were held and professors spent extended periods of time in urban classrooms. Along with gaining insights into each other's work environments, new partnerships and alliances were formed between the university and the public schools. The authors of this article (one who served as a Rural Fellow and one as an Urban Fellow) felt that the development of case studies could be a viable means by which many of the insights that they obtained could be translated into curriculum materials for pre-service teachers. The use of case studies was also viewed as attractive in that they could encourage students to act as decision makers and apply educational theory in "safe" situations.

Development of the Case Studies

A $2,000 grant was obtained from Clarion's College of Education and Human Services to support the project. Most of the monies were used to provide consultant fees ($100 each) for teachers who were willing to participate in the project. Teachers who had previous contact with the university were asked to share a dilemma, problem or challenge that they have encountered in their teaching career and how they sought to address or resolve it. An effort was made to include both urban and rural teachers from both the elementary and secondary levels. Virtually every invited teacher was willing to participate and could readily recall at least one situation in their career that lent itself to the development of a case study. Teachers were asked to jot down as much as they could recall about the situation before being formally interviewed. During the first part of the audiotaped interviews, teachers were asked to tell about the situation in as much detail as possible. Then as a follow-up, probing questions were asked in order to obtain clarification on certain points or further elaboration about their emotions, reactions and other details. Once the tapes were transcribed, the instructors wrote the case studies in a narrative format trying not to exceed two or three typed pages. In writing the cases, the authors sought to include both relevant and irrelevant details so that students would have to critically analyze the cases. Actual names of individuals and places were changed to protect the teachers' privacy. The teachers were then given a copy of their case study in order to make further suggestions and to give their approval before they were used with students.

The Case Studies

While no particular effort was made to assure that a variety of topics were included, numerous scenarios did emerge. While some were particular to just a rural or an urban setting, others applied to any school setting. It was interesting that most dilemmas focused on teacher relationships—with students, other teachers, parents, administrators, and supervisors—a topic that receives little attention in most teacher preparation programs.

Themes that emerged that were specific to rural teachers were: the numerous roles that rural teachers must assume, problems posed by teaching in small communities where virtually "everybody knows each other," and the lack of resources and opportunities for students and teachers in rural areas.

The urban case studies centered on problems which are more visible in cities, primarily poverty, institutionalized racism, and students' accessibility to drugs.

Using the Case Studies in the Classroom

The case studies were piloted by one instructor in her elementary and secondary social studies methods courses and by the other in her basic teaching skills classes. The use of the cases extended over three to four class periods in each course. The case studies were used midway through the course when the students and instructor were fairly familiar with each other. On the first day, students were given an overview regarding the use of case studies and how the ones they would be working with were developed. Students were introduced to a basic problem solving model, and the whole class, led by the instructor, worked through a short case study. Two points were stressed—first, that there were no particular "right" answers, and second, that the problem solving model would serve only as a guide and students might wish to develop alternative strategies for dealing with the case studies. Next, students were assigned to small groups of three to five students and assigned a case study. Students were asked to read their cases, underlining key points. The instructor moved around the room offering to clarify any points about the case studies or their assignment. Students were encouraged to begin planning their strategies for analyzing the case and to seek any appropriate outside information (readings, consultation with experts, etc.,) prior to the next class. The second class was devoted to small group discussions of the individual cases. Each group had a reporter who noted key points. Students were also to decide how they would share their case and analysis during the next class session. On the third and fourth days, students used several approaches to present their case studies, including role plays, simulations, handouts and overhead transparencies. Chairs were arranged in a large circle and as presentations were made, other students raised questions or made additional comments and suggestions. The instructor further queried students on certain cases as to the nature of rural and urban schools and the generalizability of the cases over schools and grade levels.

Outcomes

Student responses to participation in the analysis of the case studies were very positive. We found that students particularly liked 1) interacting with others, 2) gaining insights into "real life" situations, and 3) being made to "think." Discussion is central to both courses in which the case studies were used, but students noticed that some of the best discussions took place over the case studies. "The use of case studies seems to make people more interested and likely to speak out," one student noted.

"This has been a good use of class time. Any time the class can discuss 'real' issues of the 'real world' it is of benefit, probably better than reading a text. The interaction is important." An unanticipated outcome, then, was the appreciation students expressed for the interaction with their peers.

A second important finding was the value students place on "real life" situations. "The case studies are as close to the real world as we students can get," said Amy, a junior from the local area.

"Reality is important to us right now," said another.

Are these students expressing a frustration with having too little "reality" in their teacher education program? Students told us that they were ready for more than "the fairy tale that is so often portrayed in textbooks."

How much "reality" are our students ready for, and when, and can there be too much? These questions arose as our students responded to the case studies, and they are ones which must guide the use of the case method with pre-service teachers. Ron, a young man from a rural area, reported that "the case studies help you to remember that everything is not going to be perfect every day when you get your teaching job." He may prefer not to be reminded.

Jeff, a young man of at least 240 pounds, told us, "a question that is brought out to a timid education major is, 'Am I ready for the 'real world"?"

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The case studies "made me reevaluate my decision to go into teaching. Some of them were sorta scary. They made me wonder if I am going to be able to handle it or not." This student, a junior in math and secondary education, may reach her senior year and determine that she isn't able to cope. Her reactions reinforce our belief in the necessity of early field experiences.

The case method provided us with insights into students' approaches to problem solving. We wanted to know if they could imagine themselves in the settings presented in the case studies and what they might do. Shannon, an elementary education major, told us that the case studies "helped out because you'd think, 'what if this were me?' and suddenly you aren't a student behind a book." We found that students were able to make the necessary leap in imagination, and they were enthusiastic about understanding and untangling the situations. In addition, we found that students were more able to relate to the case studies than to material in their textbooks. One student told us quite clearly, "Books give facts. Case studies give reality."

"Textbooks cannot give you these insights," another student told us, even though the text for the basic teaching skills course, *Learning and Teaching* by Kauchak and Eggen, is rich with classroom scenarios. It is apparent that our discussion of the development of the case studies gave them the credibility our students need.

Students told us that the case studies started them thinking about teaching differently than they had before, sometimes using the phrase "application of concepts." One student indicated that he is beginning to see an alternative to his traditional approach to problem solving.

> "I'll probably look for solutions through research—advisors in schools, school board, and supervisors may have new knowledge or new theories to handle the problems. My peers can help, too."

"Of course, your peers will have ideas and suggestions," we said. We encouraged students to see in our discussion of the case studies that there may be multiple solutions to a problem, and often the best solutions come out of those discussions rather than one person trying to handle it alone.

It was at this point that an important reward came for us. "Ah, ha!" said one student.

> "I've never even considered my peers before, the teachers I'll work with. Of course they'll be there for help. I've been so busy being concerned with the kids and what I'm going to teach them, and then trying to imagine how to evaluate them, I've just never thought about fellow teachers."

There are implications here for our entire teacher education program. In our classes we use group assignments, learning teams, peers as students in microteach settings, peer critiques of lesson plans and lessons. When they're student teaching, we encourage the discussions which take place during car pooling, peer observations and feedback. But we do not have a weekly seminar during our student teaching semester. Twice during the semester our student teachers leave their assignments for large group sessions back on campus, and their reactions to these days is generally negative.

Our College of Education is undergoing reviews of its programs at present; an upcoming NCATE visit has enabled us to look at what we're doing as a whole. It is our hope that what we learn from working with our students through techniques such as the use of case studies, can ultimately be of benefit to all students in our program. At whatever moment in their pre-service education our students come to realize that reality is important to them, we need to be able to help them meet that reality and to provide them with tools and methods to face the situations they will encounter.

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DECIPHERING THE THINKING PROCESS THAT OCCURS DURING PROBLEM SOLVING AND TEACHING IT TO TEACHERS AND STUDENTS

Gloria Crawford Paige

People inadvertently learn some problem-solving or thinking behaviors through their experience. Undoubtedly, this learning, often referred to as "trial-and-error," is time-consuming, thus costly; and, some people never acquire all of the thinking behaviors necessary for effective solutions to problems in the work place or in their personal lives. It follows, then, that many teachers begin their professional employment unprepared by both experience and training for a large part of the work they must do. This is not surprising when one considers that the problem of how best to prepare teachers for our schools is still being debated. Initially, the sole requirement for teachers in the public schools was to acquire knowledge in their subject matter areas. However, with the increased complexity of society and thus, the demands placed upon schools, principals, students, teachers, and even the public in general often disagree as to what competencies a "good" teacher should have. The variability in teaching requirements is growing and the nature of what the profession will be a generation from now cannot be predicted with accuracy. Despite the continual appearance of new classroom problems, perhaps teachers, college educators and other public school personnel could agree that, in addition to being competent in their chosen subject matter areas, teachers also should be competent problem solvers. What is more, teachers need to be prepared to teach the thinking process involved in problem solving to their students.

Research has a tremendous role to play in identifying with some precision just what thinking skills are and how they manifest themselves across a wide variety of contexts. According to Symonds (Cited in Kuhn, 1986, Summer, p. 502), "a glitch in experimental programs is that they have focused on teaching students *about* good thinking rather than the *process* involved in reaching a solution."

All of us here recognize that there is a definite need for additional research in the identification and teaching of the thinking process involved in problem solving. In 1981, the speaker researched both the process and a method for teaching it. She concluded that people engage at one time or another in eight different thinking or problem-solving behaviors which will be discussed later as part of the current study. In the 1981 study, prospective teachers, enrolled in a behavioral psychology course at West Virginia University, engaged in the manipulation of these behaviors to solve everyday classroom problems. Using the "think aloud" method, participants taped their thinking behaviors, which were later transcribed and assigned to one of the eight categories. Paige found that from baseline to intervention, nearly all of the participants' thinking behaviors could be assigned to one of the eight categories, and that there were increases in: (a) the number of responses within each category, (b) the number of different kinds of thinking behaviors engaged in by problem solvers, (c) the amount of time spent solving problems, (d) the percent of problems solved, and (e) the "conscious awareness" by problem solvers that such behaviors were a part of their behavioral repertoires. Even with these findings, however, questions remained: to what extent does the process advanced by Paige (1981) cover the thinking behaviors of more experienced problem solvers? and (2) To what extent can this process be taught to people of different ages with varying degrees of experience? During the Summer of 1991, this presenter conducted similar, broad-based research in an attempt to answer those two questions.

The first step toward understanding the process set forth in these studies is to become thoroughly familiar with answers to two, basic questions: (1) What is a problem? and (2) What is problem solving or the thinking process that occurs during problem solving?

What is a Problem?

Skinner's (1968) definition of a problem is appropriate for this study. According to him, when we are faced with a situation in which no effective reinforcing response is available, or when we cannot emit a strong response due to a current state of deprivation or aversive stimulation, we have a problem. Such statements as "I don't know what to do," or "I'm completely baffled!" are indications of one type of problem. On the other hand, we may have a strong response in our behavioral repertoire that would be effective were we able to emit it; but, due to some current state of deprivation or aversive stimulation, we cannot. Thus, not being able to emit the response becomes a problem. A hungry person cannot eat in the absence of food nor can an orator make an effective speech on "The Times of Henry James" in the absence of the appropriate information. In addition to the problem created by inaccessibility, responses are often not emitted due to a history of the response having been punished in the past. For example, employees may not speak out in the presence of superiors if, in the past, they have been made to feel "stupid" or in some other way punished when they did. The actress who "freezes" on stage may do so from fear of punishing consequences that come with failure to please the audience. Whatever the controlling variables, a problem exists when the problem-solver fails to emit the response that will make a situation no longer problematic.

What is the Thinking Process That Occurs during Problem Solving?

One solves a problem by emitting a response that changes the situation so that it no longer lacks a solution—the employees speak out in the presence of their superiors, or the actress performs without long periods of hesitation. A successful solution maximizes other positive consequences and minimizes negative ones, such as the creation or avoidance of additional problem situations, punishing or reinforcing emotional by-products, and social approval or disapproval. However, there is more to problem solving than simply emitting a solution. As Skinner (1953, p. 247) puts it, "We are concerned here with the process of finding the solution. Problem solving may be defined as any behavior, which, through the manipulation of variables, makes the appearance of a solution more probable."

For this research endeavor, then, a problem was defined as the unavailability of an effective response; and, problem solving as specifically behaving in ways that alter the environment, prompting a solution. It is these prompting behaviors that one must teach in order to produce efficient and competent problem solvers.

The impact of this thinking process lies both with the eight behaviors themselves and the manner in which they are used. The process is based on the operant conditioning model in which certain events or circumstances (preceding stimuli) may stimulate a person to behave in a problematic way (response) which may be followed by positive or negative consequences (consequential stimuli) that increase or decrease the probability that the problematic behavior will occur again. Table 1 illustrates how the analysis of a problem situation within this model works. The problem situation as it exists is first analyzed. If the sympathetic teacher is present when the young boy skins his knee, the boy cries because in the past, whenever he cried, the teacher would hug him and offer reassuring words. The problem solving process, as explained in Table 1, produces a solution whereby if the boy cries, the teacher withholds hugs assuring words, while the other boys tease him. But, in the presence of a non-sympathetic teacher (who, in the past has not provided any type of reinforcement for crying) and the other boys, the child looks at his knee and continues playing, at which time he once again receives hugs and words of praise from the teacher and is no longer teased by the other boys.

Operational Definitions

The eight thinking behaviors to be manipulated within the operant conditioning model as shown in Table 1 are operationalized below.

Clarifying. There are several ways that a teacher can respond to a problem situation. One way is to clarify the situation as it exists. This may involve asking questions or making comments about any element, activity, word, or event within the problem situation that my be vague or complex. It may include the problem behavior itself—exactly what does the student do to make the teacher conclude that a problem exists? What are the events taking place before and after the problem behavior occurs? Clarifying also includes: identifying the activities of other people within the situation and the effects these activities have upon the problem, describing the setting in which the problem behavior occurs, and determining what behavior is considered to be appropriate.

Generalizing and Discriminating. To generalize is to respond similarly in one situation as in another, while engaging in discriminant thinking is to respond differently in a current situation than in one experienced in the past. On the basis of these similarities and differences, teachers should be able to determine whether or not a solution that was effective in the past would also be effective today.

Deleting. To delete is to remove existing stimuli from problem situations. Such stimuli are generally viewed as obstacles to reaching an effective solution. Deleting behaviors may include arranging to have certain activities, events, people, places, or things removed entirely from the problem situation—as in the removal of the stereo from a child's room to encourage studying.

Adding. Just as existing stimuli or elements in the problem situation can be deleted, new ones can be added. New information may be needed, new people may need to get involved; or, new procedures, principles or reinforcers may need to be introduced into the process.

Increasing the Intensity. This thinking behavior involves increasing the intensity of existing controlling stimuli. Problem solvers can make stimuli stronger or more potent, they can make them occur with greater frequency, and/or they can make them occur over longer periods of time. As examples, teachers can give a student 10 points for completing a unit rather than only 1 point, or they can give points more frequently for designated steps toward the completion of a unit rather than holding out for the entire unit to be completed. Other examples could be in: (a) providing more occasions for students to show their products, (b) arranging for more contact with people or places that stimulate or reinforce the appropriate behavior, and (c) arranging for contact with effective stimuli over longer periods of time.

Decreasing the Intensity. Just as problem solvers can increase the intensity of a stimulus to make it more effective upon behavior, they can also reduce or decrease the intensity to minimize its effect. This involves either making stimuli weaker or less potent, making them occur with less frequency, and shortening the period of time over which they occur.

The concern here is with increasing or decreasing the intensity of the controlling variables—those people, places, things, or events that control the behavior, NOT the behavior itself. For example, having Sue increase the number of sentences she writes is increasing the behavior of "sentence writing"; however, giving her more points for each sentence she completes is increasing the intensity of one of the variables (points) that control writing.

Arranging/Rearranging. The thinking process involved in reaching a solution also includes arranging new stimuli introduced into the problem situation or rearranging stimuli that already exist in order to get a new effect. People arrange new furniture for the best effect, but rearrange old furniture for a different effect. Problem solvers might use different sequences or interchange stimuli as when they shift reinforcers from inappropriate to appropriate behaviors or, for example, when counselors or principals shift students from one class to another. Fragmented, ineffective arrangements of preceding and consequential stimuli may be rearranged. Whereas different stimuli provided by different personnel at school may not be effective when given by one person, the arrangement may become effective if it is implemented simultaneously by other key people in the student's day to day activities as well.

Methods

Participants: Nine participants were used in this study—four with teaching experience and five middle and high school students. Teachers consisted of three Blacks and one Hispanic (three females and one male) and had an average of 10 years of teaching experience with a high of 25 years for one participant and a low of one year for another. They ranged in age from 30 to 57 years. Among the students (four females and one male) were one Hispanic, one Caucasian and three Blacks. They ranged in age from 12 to 16 years.

Procedures: Ten, three-hour sessions, with sufficient breaks, were conducted between July 15 and August 1, 1991. The first was a warm-up session designed to:

1. familiarize participants with their tape recorders and to provide them with practice in their use;
2. build a short history of reinforcement for "thinking aloud"; and,
3. establish a reinforcing atmosphere for speaking often, spontaneously, and in ways that may have been punished in the past or may be currently punished in other settings.

An individualized, self-paced module containing 12 units was used to teach the concepts involved, with an assessment being administered at the end of each unit to determine participants' understanding of the concepts. After one or two thinking behaviors had been taught, and after the assessments were passed at the 85 percent level, participants were given a problem on which they were to practice the behaviors taught. If participants did not make 85 percent on an assessment the first time around, they were given the option of tutoring by the research assistant or the experimenter, or of redoing the unit on their own. For those participants with reading problems, each unit of the module was put on cassette tape so that participants could accompany their reading with the spoken word.

Participants recorded their thinking behaviors on cassette tape. After typed scripts or protocols were produced from the tapes, the experimenter (primary observer) and a secondary observer wrote a coded number of the appropriate category each time participants asked a question, made a comment or uttered other understandable words or sound that could be defined as one of the thinking behaviors. Counts were taken from the scripts, the frequency of these counts within each category was determined, and the percent of increase or decrease from pretesting to post-testing was noted.

Results

This study was designed to answer two questions: (1) to what extent does the process advanced by Paige (1981) cover the thinking behaviors of experienced problem solvers? and (2) to what extent can this process be taught to people of different ages with varying degrees of experience?

In response to the first question, results show that out of a total of 1197 thinking behaviors recorded by teachers, 1158 could be placed into one of the aforementioned categories. Two of the thinking behaviors not categorized dealt with the thinking process in which one engages when determining that a problem exists and that something should be done about it. The thinking process proposed in this study does not intend to account for such pre-problem solving behaviors.

A requirement of the "rearranging" category is that the elements rearranged be a part of the original problem situation; however, the other 37 behaviors, not initially categorized, concerned arranging elements that were not originally a part of the problem situation. As a result of this finding, the category designated "rearranging" was broadened to include "arranging" new elements introduced into the problem situation, and participant responses in this area were included in the results of this study.

The study further shows that participants engaged in "clarifying" elements of the problem situation most often, while engaging in "discriminating" between current and past problems least often.

As to the second question, results of the current study generally support the earlier conclusion that the eight categories were useful in teaching the thinking process that prompts solutions to problems. It further shows that the process can be taught to people of different age groups who have different kinds and years of experience.

As for problem solutions, one teacher increased effectiveness by 25 percent, while the other three successfully solved 100 percent of their problems during both the pretest and post-test. Two of the students increased their solution effectiveness by 66 percent, two made no improvement and one was at maximum effectiveness at pretesting. In the original study, all of the participants improved problem solution effectiveness.

The study also shows a general percentage decrease from pre-test to post-test in total responses in all categories of thinking as the age of participants increased, with an average increase of 37 percent for 12-to

16-year-olds and a decrease of 12 percent for the 30-to 57-year-olds. There is a similar trend in the number of different categories in which participants engaged (31 percent increase for 12-to 16-year-olds and 9 percent decrease for 30-to 57-year-olds). The study further shows a general decreasing trend, with increased age, in the amount of time it took participants to reach a solution, with the 12-to 16-year-olds averaging a 42 percent increase while the 30-to 57-year-olds were averaging a 13 percent decrease.

Within the eight thinking categories, teachers decreased their number of responses from pre-test to post-test in every category except "clarifying" and "arranging/rearranging." On the other hand, students increased responding in all categories except "generalizing" and "adding."

Discussion

The decreasing trend in teacher responding may be a function of teachers becoming more efficient in the use of behaviors they have used for many years, while students, having more to learn and integrate into their behavioral repertoire, required more time to reach a final solution. Even though three of the teachers reached the ceiling in their arrival at solutions to problems during the pretest, thereby, showing no improvement during the post-test period, they engaged in fewer thinking behaviors and took less time to reach solutions after instruction, showing a more efficient use of time.

It seems that teachers had acquired the thinking behaviors set forth in this study prior to the study; and, to a lesser degree, so had the students. For teachers it seemed a process of discovering what they were already doing, how they were doing it and how they could improve upon it. Teachers seemed attracted to the manner in which preceding and consequential stimuli could be analyzed and manipulated to change behavior.

After instruction, students investigated more options as seen in their increase in both the overall number of behaviors, and the number of different kinds of behaviors in which they engaged. It appears that consideration of additional options also added to the amount of time that it took them to reach solutions. In addition, from listening to the tapes, it seems that the students were still in the acquisition stage, thus they may not have had sufficient practice to perform more quickly. This seemed obvious by the unnatural manner in which two of them sometime used the thinking behaviors.

The frequency of responding was relatively high in two of the behaviors (clarifying and adding), while the frequency in other categories was relatively low. This may have been a function of the number of opportunities available to engage in some of the behaviors. In the clarifying category, for example, opportunities to respond seemed greater than for any other behavior. As long as the problem solvers had some question about the existing problem situation, limits could be set only by the problem solvers themselves; however, in the generalizing category, opportunities were limited to the problem solver's past experience with similar problems. For example, if the problem solvers had had no similar experience in the past, they would likely make mere reference to that fact (one generalizing statement); however, if they had encountered a similar problem, they might also refer to the manner in which the problem was solved at that time. The discriminating category seems to be even more limiting than generalizing in that the problem solvers would not ordinarily engage in discriminating if they had not first or simultaneously engaged in generalizing. It should also be noted that if the problem solver found the solution to a past problem to be sufficient for the present problem, engaging in other thinking behaviors would be unnecessary.

There may be a question as to the relative importance of each thinking behavior to problem solution: as to the lack of correspondence between solutions and any specific thinking behavior. If one were to look at the question from the standpoint of the total number of times participants engaged in each thinking behavior, ranking them would show clarifying as being the most important (as result of being most often engaged in), adding second, rearranging third, generalizing fourth, and so on. Numbers may be one indicator of the importance of a particular thinking behavior; however, the question seems far too complex for such to be the only answer. Other factors, such as the nature and complexity of the problem situation and the experience of the problem solver must be taken into consideration. A problem that is complex or vague to one problem solver may require more clarifying behaviors than a problem that is less complex and less vague.

This study has shown that the thinking behaviors involved in problem solving can be taught. The procedure is practical for classroom use, and while teachers and students may have already acquired some of the behaviors presented, the process can reduce the time and error factors associated with trial-and-error methods, and help people more easily adjust the manner in which they solve problems.

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Table 1
Why The Child Cried Over a Skinned Knee

(1) Preceding Stimuli ——>	(2) Response ——>	(3) Consequential Stimuli
Problem Situation		
-Skinned knee ——> -No pain -Sympathetic teacher present	Child cries ——>	-Hug from teacher -Reassuring words from teacher
Problem Solving		
Using the eight thinking behaviors, the problem solver manipulates the preceding and consequential stimuli in columns 1 and 3 until an acceptable solution has been reached. Manipulating preceding stimuli should help stimulate the appropriate behavior, while the manipulation of consequential stimuli should make the occurrence of the appropriate behavior more likely.		
Problem Solution		
	IF:	
-Skinned knee ——> -No pain -Non-sympathetic teacher present -Other children present	Child continues crying ——>	-Teacher becomes involved with other students, withholding hugs and reassuring words. -Teased by other students
	WHEN:	
	Child looks at knee and continues playing ——>	-Hugs andpraising words from teacher -No longer teased by other students

THE USE OF A CONVERSATIONAL APPROACH IN TEACHING AND INTERVIEWING TO PROMOTE THINKING

Judith B. MacDonald

Introduction

In a recent study, I interviewed 50 teachers who are also parents about their beliefs of the effects of the dual role (MacDonald, 1991). During the interview process I realized that my interviewing behavior was influenced by what I know about discussion-leading in the classroom (MacDonald, 1986). The purposes of this paper are (1) to show how discussion-leading behaviors can be applied in an interview setting, and (2) to identify behaviors for teachers and interviewers who want to foster the thinking and expression of ideas of students and interviewees.

In this paper I suggest that in teaching and interviewing the development of a conversational atmosphere stimulates the productivity of thought of the targeted population- the students or the interviewees. This study is based on a perspective of teaching and interviewing which values the stimulation of thinking and the expression of ideas of students and interviewees. Thus the ideas presented here would not apply to a conception of teaching in which the presentation of facts is a central goal. Nor would these ideas apply if interviewing were perceived as a process of fitting responses into pre-existing categories. Instead, the ideas presented here apply when the classroom and the interview are seen as settings for conversational interchange in which participants express, develop, share ideas and further their own thinking.

As I have stated, my interviewing behavior was guided by what I know about stimulating student thinking in discussion settings. In doing research on interviewing I discovered that my approach to interviewing is in the "new tradition," if that is not an oxymoron, of research interviewing (Mishler, 1986) in which the interview is perceived of as a form of discourse. In this type of interview the interviewee may discover meaning and understanding through the actual interview process. This approach differs from mainstream interviewing in which respondents focus on answering the interviewer's questions and in which "...the idea of discourse is suppressed" (Mishler, 1986, p. viii). Although mainstream interviewing is the more common form of interview there is a growing use, in various disciplines, of the more open-ended interview. (See, for example, McPherson, 1972; Spencer, 1987; McKaughan, 1987; Nias, 1989). Levinson (1978) described his approach as "biographical interviewing." In Spradley's ethnographic approach (1979), the interviewer diverges from asking only pre-set questions. Apter (1990), too, found that if the interviewer "sticks to the question base too rigorously she may miss essential points" (p. 12).

The notion of teaching as a conversational process is not new. Green and Wallat (1981) conceptualized it, and analysts of verbal interchange and discussions (a verbal mode closely linked to conversations) have identified teaching behaviors which encourage the exchange of ideas. (See Taba, 1962; Bellack, 1966; Moffet, 1968; Barnes, 1976; Mehan, 1979; MacDonald, 1987; Dillon, 1987). Teachers create a learning climate of their choice. They can foster an invitational environment in which students are encouraged to express thoughts or they can inhibit the expression of student thought by the kinds of questions they ask and by their treatment of student's verbal expressions.

A primary goal of mine as a teacher is to stimulate the expression of students' ideas. Teaching behaviors which encourage student participation and are germane to interviewing are to restate, repeat, or to respond minimally (with a comment such as "uh huh," or "I see") to what a participant has said. These techniques invite students and interviewees to continue to express their thoughts. Spradley (1979) also noted the effect of restating in interviewing: "[it] embodies the nonjudgmental attitude which contributes directly to rapport" (p. 81).

Comments of minimal response ("uh huh," "I see") resemble "wait-time" (Rowe, 1974) and give the participant time to speak. These behaviors have a parallel in therapeutic settings: a therapist stimulates patient participation not only by direct questioning but also by commenting non-judgmentally on the patient's remarks (MacKinnon & Michels, 1971; Lennard & Bernstein, 1960).

The interviews resembled conversations. When the teachers expressed thoughts that were familiar to me, I would reveal my feelings and experience. I share Wolcott's (1990) view that "you don't have to be neutral to be objective" (p. 145). This interviewing behavior originated in classroom discussion-leading in which, when appropriate and relevant, I would share my experiences with students.

The interviews were guided by a set of prepared questions but also included amplifications which teachers made to respond to the questions as fully as they wished. Here, too, my interviewing behavior was influenced by my commitment as a teacher to give students the time to develop their thought.

The interviews took place in eight suburban New Jersey schools. Fifty female and male teachers of elementary, middle and high schools students volunteered to participate. They range in age from 35 to 55. Sixty percent of the teachers are women. Ninety percent are currently married. They have from one to five children of their own. The interviews lasted about one hour and were recorded on audiotape and were transcribed by me. I found it crucial to tape record the interviews in order to analyze the teachers' comments for common themes of meaning. Themes emerged from studying the data as in the "grounded theory" tradition of Glaser and Strauss (1967).

For many of the teachers, being in a collaborative environment, which was more conversational than interrogatory, resulted in their discovery of ideas of which they were previously unaware. At least that is how many of the teachers described the effect of the interview. Analysis of their comments for common themes resulted in the development of the following patterns: (1) To the question, "Do you think being a parent influenced you as a teacher?" three themes of influence emerged: (a) parental, (b) affective/academic, (c) social/home. The parental theme, for example, includes the teachers' ideas about how being a teaching-parent affects their attitudes towards the parents of their students. (2) To the question "Has being a teacher influenced your parenting?" there were also three themes of influence: (a) a broadened perspective towards own children, (b) the use of teaching knowledge at home (c) less patience with own children. (In the paper I discuss themes of difficulty in being a teaching-parent as well as differences in the male and female perceptions of the dual role).

Conclusion/Implications

The communicative environment we create as teachers, researchers, or as "just" human beings (Tannen, 1990) can enhance or diminish the possibility for mutual understanding and intellectual growth. In my view, our central task as teachers is to develop an environment in which students take seriously the task of expressing and developing ideas. I have identified some modest behaviors which may aid in the development of such an environment, and I suggest they are applicable to interviewing where the nurturance of ideas is equally important.

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METACOGNITIVE IMPLEMENTATION OF JOURNALING: A STRATEGY TO PROMOTE REFLECTIVE TEACHING

Ruth M. Loring

Metacognitive behavior among pre-service teachers is promoted through the use of journal writing in the education course, Reading in the Content Areas. Journaling is used as a powerful strategy for reflecting on the content of the course itself, connecting to prior knowledge, comparing content information among courses, and recording personal reactions to learning events. Reflective teaching has become a focus of attention in recent months for both researchers and teachers. Brandt has observed that, "Everyone needs opportunities for self-renewal, but those responsible for developing other human beings need them most of all. Thinking deeply about what we are doing leads us to ask better questions, break out of fruitless routines, make unexpected connections, and experiment with fresh ideas" (1991).

I believe that using journals to record reflective thinking enables pre-service teachers to do just that, i.e., ask better questions, alter useless routines, make connections, and become innovative. Furthermore, by using journals in this pre-service education course, students are given the opportunity to experience its benefits before they become entrenched in the demands of full-time positions as teachers. Such a course could be one of the last significant opportunities for effective teaching techniques and strategies to be observed as they are modeled by both teacher and students. In addition, students are able to experience, as learners, the opportunities for reflective thinking which, in turn, will encourage them to use journals in a similar manner in their own classrooms. Creating a university classroom that replicates the kind of knowledge, skill, and attitude which lead to reflective thinking on the part of teacher and students in a cooperative atmosphere is an ideal within reach. The metacognitive use of a journal to record thoughts is an effective means of working toward this goal. However, its value depends on the quality and quantity of metacognitive behaviors actually implemented. Using a framework for criteria to examine levels of metacognition increases the possibility that those levels will be more thoroughly monitored and practiced. The anticipated outcome is more reflective teaching.

Metacognition is generally thought of as the process of "thinking about thinking." The more specified theoretical framework for metacognitive behaviors used in this investigation is one proposed by David Perkins (1989). "Meta-level" reflective thinking includes "process control" and "bootstrap learning." Perkins reminds us that "good thinkers do not simply deploy appropriate operations or large-scale strategies. They also think about what they are doing. They self-monitor to keep themselves on track. They plan in advance, and reflect afterwards to see whether there are ways they might have managed their thinking better" (1989, p. 7).

Process control means the "moment to moment management of thinking." Elements of process control include directions, situation signals, self-signaling, downloading, and alerting. Directions refer to what a "teacher or written instructions tell you to do." Situation signals indicate having "a sensitivity to what the situation invites, provokes or requires." Self-signaling is the process of "signaling yourself with words, images, etc., which function as thinking organizers." Downloading occurs when paper or a blackboard, for example, is used "to think on and to represent thinking organizers." Finally, alerting refers "to activating the neurological system through change in posture, stretching, use of humor, or having a sense of mystery."

Bootstrap learning occurs when "learners improve their own thinking through reflection." This meta-level reflective thinking includes three components: awareness, strategic, and reflective (Swartz and Perkins, 1990). The awareness use of meta-level processing involves "labeling and classifying." A strategic use of meta-level processing includes "describing and prescribing thinking organizers." Finally, the reflective use of meta-level processing refers to "the critique and revision of thinking organizers."

I examined journal entries looking for evidence that process control and bootstrap learning could have been occurring as the students recorded their thoughts. My investigation included approximately twenty-nine per cent of the journal entries of 440 pre-service students who took the education course, Reading in the Content Areas, between the Summer of 1986 and Fall of 1990 at an accredited university. I analyzed 127 journals, referred to as "learning logs," with the following question in mind: Is there *evidence of meta-level process control and bootstrap learning?*

The analysis revealed numerous examples of process control and bootstrap learning. The excerpts given below are representative of those found within each of the categories. A brief commentary follows each of the categories.

Process control - Directions:

"I am so glad you brought up the idea that the teacher should read and use the student's textbook. If you remember you told me the same thing when I was doing my student teaching and I did it from that time on. I found that the students paid a lot more attention to their textbooks when they saw I was using a textbook just like theirs. There are so many small things teachers can do to make learning easier for their students. The less stress the students and the teacher have, the better it is for everyone."

Notice that the student made the meta-level connection between directions given in another setting and what was being suggested in the course. In addition, she elaborated on the meta-level process control by citing the value of the directions in reducing stress level in teaching and learning.

Process control - Situation signals:

> "My journal has really helped me to internalize the thinking/writing process. I agree whole-heartedly that writing is a way of knowing. This journal has served as a stimulus to keep me on track and up to date with both my studies and my thinking."
>
> "I used to just read or write something. I never thought about it as a process...It is harder for me to notice it in my reading but it is very noticeable in my writing. It was a very chaotic process for me before, but now it is less chaotic."
>
> "The discussion of summary writing was very interesting to me. I had indeed previously considered it to be the reader's opinion and therefore naturally there would be differences among readers' opinions. The organized manner in which summary writing was presented opened my eyes to how a summary written in four parts was really much more comprehensive. I immediately conducted a short block of instruction for my seventeen and thirteen year olds."

In all of the examples above, the students are expressing a sensitivity to what the thinking task requires. A heightened awareness of the requirements, goals, purposes, and methods of a course is implied if one is to "stay on track and up to date." I also noticed that those students who revealed a sensitivity to situation, commented on the modeling of teaching techniques that was an integral part of the course. A representative comment would be, "I observed you practicing each and every step and technique you were teaching us."

Process control - Self-signaling:

> "These entries put pictures in my mind for easy recall. It helps tie loose ends together."
>
> "It seems that when I study many concepts at once, it is easier to see the way these concepts are linked, thus facilitating the concept learning."
>
> "Something that was mentioned in class was the format of the book. It made me think of my youngest son, Andrew. He just read a book by Laura Ingalls Wilder, *West from Home.* It's a book filled with letters written by Laura to her husband...Andrew said he liked the book, but didn't like the format: the letters. It was confusing

> and seemed to jump around. He hadn't taken time to look through the book completely. The first couple of pages weren't in letter form, but rather an introduction. That just seemed to indicate the importance of a reader to know where he is going before he starts out - sort of like we use a map to know where we're going when we go on a trip. And that's what happens when a reader reads a book - we take a trip to learn more."

Students who exhibited a self-signaling type of meta-level reflective thinking were able to call up images and create linguistic links to help make connections in the learning process. In particular, the student who wrote of her son's failure to read the introduction to the book made a direct connection from her own self-signaled meta-level thinking to the topic of discussion in the course and created an analogy to express her observation.

Process control - Downloading:

> "One significant feature of writing in the learning log was the personal insight I received after writing about my learning experiences. Sometimes I don't pick up on all the details of something I've learned until I write it down and reflect on it. This proves helpful to me."
>
> "I found it helpful to draw my graphic organizer as I went along section by section - I was able to pull the important information out much more efficiently and quickly than with regular note taking."
>
> "Things I learned!" (This category was included at the end of each day's entry followed by a list of 3 to 4 briefly stated concepts discussed that day in class.)

These three excerpts are representative of many entries which reflected the process control of downloading. In addition to cognitive mapping which was a vital part of the course, students used various ways to sketch out their thoughts and itemize their insights.

Process control - Alerting:

> "I also noticed every learner showed approval or disapproval on their faces and also by body language. If the lesson was moving fast they seemed to lean toward the teacher and usually with approval on their faces. However, if the lesson became dull that also showed in the learner's face. They also seemed to relax and even got far away looks in their eyes (maybe making grocery lists in their minds.) Often teachers have looked at me with questioning eyes. Now, I wonder if my body language was a part of that."

This excerpt is typical of the type of entry that noted physical behavior as an indicator of thought processes. It is designated as alerting process control because the student made the application to herself; thus, becoming metacognitive.

Throughout the analysis of the sampled learning logs, I consistently noted evidence that the students were seeking to improve their own thinking through reflection, i.e., bootstrap learning. One journal writing assignment was particularly effective in encouraging students to implement bootstrap learning at the meta-level. In this assignment the student was to reflect on the writing process used to complete a writing assignment, "Teaching Skillful Thinking." Instructions for the paper were to "describe how you would infuse critical and creative thinking into the content that you teach." Three primary components were to be considered: the teacher, the student, and the classroom. The audience could be specified, i.e., a friend, the principal, the superintendent, a fellow teacher or a family member.

All students were to follow a "writing process" which could be described as recursive. To begin, the students brainstormed to reveal what they already knew about thinking and the teaching of thinking. They also watched four videotapes from the Association for Supervision and Curriculum Development on *Teaching Skillful Thinking* (1986). Information about teaching thinking presented in the text and ideas discussed in class provided additional background. They generated lists of the characteristics of good and poor thinkers and drew out their ideas prior to writing the first draft using a cognitive map as a graphic organizer to show the relationship among and between ideas. They used their journals to reflect on the discussions conducted in class and to begin their rough drafts for their paper. Class time was given for the students to share each of these components with their peers. The entire writing assignment took several weeks of creating, sharing, critiquing, revising, sharing, revising, sharing, editing, and finally publishing.

An analysis of journal entries revealed evidence of metacognition during the writing process. Many students shared feelings of frustration and experiences of difficulty with the task itself. Their entries were forthright and honest. Nevertheless, most of the students ended the experience with an awareness that following the writing process not only enabled them to express themselves more effectively but they also came away with a commitment to use the method with their own students. An analysis of journal entries revealed the presence of all three levels of bootstrap learning: awareness, strategic, and reflective. These levels occurred interactively, rather than as discrete processes. The following excerpts are representative of that integration.

Bootstrap learning:

> "The problem of writing this way is just breaking an old habit."

"For me, writing is like sculpting in that I often have a very general idea about what I will say, but after I get into the paper, it seems to have a will of its own and often develops itself *as* I am writing."

"I really think that the mapping or clustering was the most help to me. Outlines have always given me trouble and I find myself worrying more about getting the outline correct than I do about the content of the outline."

"I think that the most effective way to realize just how well something works is to try it yourself, not just read about it in books."

"I truly believe that this is the first time I can recall experiencing a feeling of awareness of being actively involved in my own learning process. The repeated process used daily in class: write at home, bring to class, share with others, add to my writing, was the dawning of my enlightenment. I could tell each day that the components to my 'Thinking Paper' were developing by this daily process. There was no longer that worried anticipation over turning in what was really no more than a typed rough draft that had never once been revised.

Another step that I found very helpful was the use of the cognitive map. I am not particularly skillful at outlining my thoughts. I tend to become more concerned with correctness of the outline structure than with the actual content of the outline, so graphically showing my thoughts worked out great for me. I realize now, that by working on my writing, I am actually improving my thinking and vice versa."

"I had never before given so much thought to the process of thinking. I found myself talking to my husband and my two older children ages 22 and 23, about it. I began to pay more attention to what and how people are thinking. I translated for a migrant worker and his family during an interview. They asked a 16 year old boy if he liked working at chopping cotton better than going to school. He remarked that he liked working better because he could make money and buy anything he wanted. This family owns no home, they sleep on the floor, and they only had a broken down sofa in the room. He thought it was better to break his back for $3.50 an hour out in the hot sun. I had to ask myself how did this boy think?

I believe that writing about thinking has made

> me more aware of the need there is to nurture good thinkers. I know everyone thinks, but is it good thinking or poor thinking? As a parent I was more the authoritative type, but now I understand that this does not nurture good thinkers. As a teacher, I need to involve the students as much as possible in making decisions about the classroom."

> "The key element to the thinking paper...was learning a dynamic and new writing style (through) the daily journal. One major writing problem that I had was organizing my thoughts in my mind. At first, the daily journal reflected that disorganization in my thought process. With continued daily writing practice, the thoughts became more organized.
>
> This new organization of thought process led to a second learning experience. My thought process was more organized but my transition sentences were still very weak. Now, the daily practice enabled me to develop and concentrate on a strong transition from one thought to another. This was the 'great leap forward' in my writing process. Third, I still lacked a smooth transition from mind, through my hands, and into print. Quite frankly, I could not understand why I could not make the final transition. It seemed like all the elements were in place but this integral element was still absent. I started to become frustrated with my inability to make this transition. Then, in the early morning hours with a clear and fresh mind, I was typing my second draft. When I realized that I was not referring to my notes to establish my writing style. My thoughts were flowing with strong transition from my mind, through my hands, and into print. I became very excited. Now, I understood that creative writing and original thought...happens when I thoroughly study and do an in depth preparation of the subject.
>
> Then I understood, writing is a way of knowing and speaking. I remembered the class lectures: 'Thinking and writing are connected; writing is a way of knowing; writing is a messy business, and writing is recursive.'"

> "The Learning Log has helped me to understand myself better by making me look deep into my heart and thoughts. I really believe this class has made me a more mature person."

As indicated in the preceding excerpts, students exhibited all meta-levels of bootstrap learning. Examples of the awareness level could include: the students who acknowledged the need to "break an old habit," who realized that "this is the first time I can recall experiencing a feeling of...being actively involved in my own learning process," and who made the connection that "writing about thinking" was the stimulus to "nurture good thinkers."

Strategic level bootstrap learning is indicated by an attention to the process of describing or prescribing plans for thoughtfulness. Some examples of this level of thinking could be: the student's suggestion "that the most effective way to realize just how well something works is to try it yourself," the student's detailing the phases in the writing process and connecting it to his "dawning...of enlightenment," and his description of "cognitive map" as an effective strategy.

The reflective level of bootstrap learning was clearly evident throughout the examined entries in the learning logs. The critiquing and revising metacognition as illustrated in the excerpts above are representative of what I found in many of the entries. Two examples of the reflective level include: the student who recognized her tendency to be overly concerned with correctness but who realizes "now, that by working on my writing, I am actually improving my thinking and vice versa," and the student who acknowledged her "need to involve the students as much as possible in making decisions about the classroom."

Finally, the overall impact of using journaling to promote metacognitive behavior was aptly expressed by one student who realized that the learning log helped him to understand himself better and to see himself as a more mature person. It is my observation that students who took the task of recording their thoughts on a daily basis benefitted in several ways. They seemed to have a clearer understanding of the course content, to have a greater sense of cohesion between this course and other education classes, and to have made more connections to prior experiences and personal life circumstances. In contrast, those students who did not write daily or failed to take the writing seriously did not seem to benefit from the experience as much. One excerpt is representative of the dilemma some students experienced.

> "Well, I've waited too long to write this. My mind is blank. All I really feel right now is frustration. I do remember that I enjoy the class, the time goes by quickly but, what did we discuss Friday? It must have been about comprehension. Before you can help a student comprehend, they have to have the motivation to want to know. This is sadly lacking in the secondary level."

I would recommend that time be allowed at the end of class to begin the journaling process. As a way to get students started, giving a specific topic for response seems to work well. Fulwiler (1987) offers excellent guidance for teaching with writing which can be useful in developing techniques for promoting metacognitive behaviors.

Meta-level process control and bootstrap learning were evident within the majority of the analyzed entries. Preservice teachers can become more competent in their knowledge of meta-level reflective thinking as well as more skillful in its use if the following questions become part of their thinking repertoire.

Process control - How am I managing my thinking?
Have I thought about the directions I have that lead me to know what to do?
Have I thought about what the situation invites, provokes, or requires?
Have I thought about signaling myself with words or images that function as thinking requires?
Have I thought about using paper or a blackboard to think on and to represent thinking organizers?
Have I thought about neurologically activating my body by changing posture, stretching, using humor or discovering a sense of mystery?

Bootstrap learning - Have I sought to improve my thinking through reflection?
Am I aware of improving my thinking by labeling and classifying my thinking?
Do I use metacognition strategically by specifying plans to improve my thinking through description and prescription of thinking organizers?
Do I practice a reflective use of metacognition by evaluating my thinking through criticism and revision of thinking organizers?

Perhaps most importantly, implementation of meta-level reflective thinking could have a profound impact on the attitude of openmindedness nurtured among pre-service teachers as they think deeply about their own thinking and subsequent behaviors. Modeling such a level of thoughtfulness in their own classrooms with their own students could be the most significant outcome of all.

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LEARNING TO LEARN SKILLS

Janey L. Montgomery and Joane W. McKay

Learning to learn is one of the paramount skills students need to acquire and build on throughout their lives. *A Nation at Risk* and other reports on education such as *First Lessons* have stressed the critical responsibility of the nation's schools in teaching students to become lifelong, independent, self assertive learners and evaluators of information.

In the last two decades, researchers have investigated effective schools and effective teachers more frequently than aspects or elements of learning. The research focus has been on the teacher rather than the learner. Perhaps this is due in part to the observation that "learning is a highly complex aspect of human mental functioning about which psychologists are by no means in agreement" (Zais, 1976).

In the last two decades, two important findings from research in this area seem to be accepted by most educators. First, learning to learn begins very early in a child's life and the earlier we begin to teach learning skills the more successful the child can be in various learning situations; and 2) learning to learn does not end with formal secondary education.

Seymour Papert, in *Mindstorms: Children, Computers and Powerful Ideas*, provides a powerful analogy for the classroom teacher when thinking about learning to learn. Papert says, "Learning to use computers can change the way children learn everything else,"(p. 8). Learning to learn empowers children and changes the way each child sees himself or herself as a successful learner.

As early as 1972, Dale outlined the characteristics of the person who has learned how to learn. He suggested that a person has these characteristics:

1. A heightened sensitivity to things that matter.
2. A feeling of continuing and cumulative power and growth in understanding.
3. The delight that comes from discovery.
4. An effective system for finding, mentally filing, and retrieving ideas.
5. Flexibility in transferring ideas from one situation to another.
6. Ease in obtaining meaning from words and images.
7. A zest for more learning. (p. 56).

Today we live in an information age, and all citizens face the complex task of locating and evaluating information for personal use. Today's students face an information explosion, particularly in electronic form, and the ability to handle information has been identified as an adult survival skill. Schools have a major responsibility to infuse these skills throughout the curriculum.

In 1990, *A Guide to Developing Learning Across the Curriculum*, (McKay and Montgomery), identified ten learning skills. This guide encourages effective approaches to the use of learning to learn skills in the classroom. The content is derived from research on learning skills as well as effective classroom practices. This publication is a guide to thinking about learning to learn as well as implementing learning to learn skills. Four questions generated from the student's point of view were generated in developing this guide:

1) What skills do I need to learn?
2) How do I learn, acquire, retrieve, and retain it?
3) How do I use learning skills in my subjects?
4) How do I know what I have learned?

To answer the first question a number of skills which related to "getting ready for learning" were chosen. The skills include: *self-evaluation, goal setting, time management, monitoring attitudes,* and *motivation.* The topic of learning styles is included with self-evaluation; types of goals and self-directed learning are included with goal setting, planning and pacing skills are included in time management. Topics of attention control and power thinking are included in monitoring attitudes and four elements that affect motivation (student success, classroom environment, instructional strategies, and rewards/reinforcements) are included in the motivation skill.

The learning to learn skills of *locating information, selecting information, organizing information, communicating information,* and *memory training* relate to the second question. The third question can be answered by examining how the ten previous learning skills can be implemented in the eight content areas of *language arts, social studies, art, foreign language, science, mathematics, health/physical education,* and *vocational education.*

The last question, "How do I know what I have learned," is crucial for learning. Through the use of standardized tests, classroom observations and program evaluation, students and teachers can get meaningful feedback on the progress in learning.

Student competencies for each of the ten learning skills were developed as broad general statements about the types of student behaviors anticipated as outcomes of instruction, regardless of age or grade level.

1. *Self Evaluation*
The student will identify learning skills that he/she needs to acquire or improve by completing three or more self-evaluation instruments.

2. *Goal Setting*
The student will demonstrate the ability to develop and execute short-term and long-range goals through self-directed independent projects within and outside the classroom.

3. *Time Management*
The student will demonstrate time management skills involving planning and pacing in a classroom instructional activity or independent study.

4. *Monitoring Attitudes*
The student will take responsibility for his/her learning by practicing attention control and power thinking techniques.

5. *Motivation*
The student will identify what motivates him/her and practice strategies to heighten extrinsic and intrinsic motivation.

6. *Locating Information*
The student will be able to identify and use print and non-print sources to locate information about a topic, issue, or concept.

7. *Selecting Information*
The student will demonstrate the skills of critical analysis of references, interpreting individual findings, and drawing conclusions relative to a topic, issue, or concept of his/her choice.

8. *Organizing Information*
The student will demonstrate his/her ability to take notes from reading or a lecture as a basis for retaining information to be used in an assignment on a topic, issue, or concept of the student's choice.

9. *Communicating Information*
The student will demonstrate reading, writing, speaking, listening, and media skills which will enhance their information-processing abilities.

10. *Memory Training*
The student will develop and refine memory training skills through the techniques of deep processing, remembering, relating, and test taking.

Strategies were developed for the infusion of these ten learning skills into eight content areas. The examples included in the K-12 curriculum guide are intended to energize the thinking and prompt the classroom teacher into identifying current practices in the classroom that encourage the development of learning skills. For example the learning skill of goal setting was combined with foreign language at the elementary level in this suggested activity.

> Help students see how goals can be met by deciding as a class to learn five new vocabulary words in a week; then, add the goal of learning "new phrases." Remind students how you must set and modify your goal to increase your vocabulary (p. 35).

A secondary activity with self-evaluation in Physical Education suggested that students follow up on physical fitness tests.

> After assessing personal fitness levels, have students use information about diet, height, weight, gender, and daily exercise for various computer nutritional programs to determine daily menus for either weight reduction or weight gain. Discuss how personal factors affect the weight program. Monitor progress toward the self-improvement goal (p. 45).

In the guide, suggested elementary activities for the ten learning skills in the eight content areas (80) and another eighty activities for the secondary level provide a background upon which the classroom teacher can reflect on the types of opportunities that students need in the classroom to build and reinforce learning skills.

If schools are to analyze and evaluate whether their curriculum adequately addresses the goal of teaching learning skills across the curriculum, they need a conception of the components of learning skills and of appropriate instructional strategies. In addition, they need:

- a model of what an effective, coordinated school-wide plan for infusing learning to learn should include.
- a suggested procedure for developing such a plan.
- suggested procedures, including sample instruments, for assessing the current curriculum by comparing it to the model plan (p. 56).

Research findings underscore the obvious, i.e., skills are best mastered when needed. Teaching these skills in isolation does not guarantee learning; schools need to plan to teach and reinforce each skill in conjunction with the student's need to use the skill. Although different authorities advocate difference approaches, most would agree on certain essentials, including:

Agreement among the staff about definitions of learning skills and about what methods should be used for correlating learning skills with content area skills. Teaching consensus requires study and discussion, especially with teachers from different disciplines, but is important in providing consistency and reinforcement in teaching.

Use of common learning terminology across disciplines and grade levels. If the same or similar skills are called by the same name in many contexts, students will find it easier to remember them and to grasp their essential qualities even when superficial differences exist in the skills that are used in different contexts. Also, teachers will find it easier to collaborate and communicate if they use the same language.

Focus on a limited number of skills taught thoroughly rather than many taught haphazardly. As with learning any skills, students need considerable practice, review, and reinforcement to achieve mastery.

Agreement about when various skills are to be taught and reinforced. This agreement will also require much discussion among teachers, but it is the only way to ensure that all the agreed on skills and types of thinking are taught and developed sufficiently.

Emphasis on affective as well as cognitive aspects of learning. How students and teachers feel about themselves as learners has a great impact on how well they learn. The general strategies of the holistic approach (open, encouraging classroom climate, thoughtful questioning style, etc.) are important in helping students develop confidence in themselves as learners.

A process for developing a school-wide plan is needed. Each school has the responsibility for ensuring that students have the opportunity to master learning skills. One method used successfully by many schools is:

1. A leadership team determines the local learning skills curriculum.
2. Responsibility for skills is assigned to certain professional school personnel at certain grade levels or in certain content areas.
3. Responsibility for a major portion of the information skills is assigned to the library media specialist.
4. Teachers and the library media specialist are given time to plan together for appropriate correlation of skills with the content area.
5. Teaching of designated skills is done by the most appropriate person at the selected grade level.
6. Methods for evaluating mastery of the skills are determined in advance and the responsibility for evaluation is assigned.
7. Appropriate schedules are developed for integrating learning skills lessons with content area units (p.57).

Creating a grid with learning skills and sub-skills (vertical and left) and the eight content areas (horizontal and right) can be used for developing such a plan and for analyzing present curriculum. It serves as an easy way to consolidate decisions about how various learning skills and processes should be taught or for gathering information about where they now exist.

Once programs have been developed, evaluating the curriculum for learning skills is the next step. The purpose of the assessment is to gather diagnostic information to help determine the needed direction of the learning skills or learning plan.

Evaluation answers the question, "Did we learn what we set out to learn?" This question can be addressed by the classroom teacher for a group of students, or by the curriculum committee for an entire school. Evaluation of learning skills involve four categories: standardized tests; teacher observations, checklists, and student or peer evaluation. Analysis of classroom observations, talking to teachers and students of similar age or grade level can reveal interesting data. If patterns emerge for a group of students in a grade, school, or district, then appropriate learning skills can be developed or selected.

The classroom teacher must be committed to the need for the infusion of the ten learning skills into the curriculum. Formative evaluations gather information "along the way" as teachers begin to develop and implement learning skills into instructional programs. Formative evaluation refers to one-on-one feedback from students or other teachers about testing, instructional activities, and small group reaction to instruction. Summative evaluation analyzes the effectiveness of the program at the end of instructional periods. The process of successful evaluation includes identification of objectives, evaluation activities, and drawing inferences from the data collected. Better decision-making is the result.

Learning to learn is a critical aspect of the daily life of each learner. At times that learner is the student, often it is the classroom teacher, and without question it includes support personnel. Before a correlation with content area skills can be outlined in any school, the classroom teacher must be committed to the need for the infusion of the ten learning skills. The learning skills strategies are generic at the elementary and secondary levels so that the classroom teacher and the learning team may add, develop, and create strategies on their own.

Learning to learn, as Ralph Tyler suggested, is the most powerful of all knowledge. William Glasser (1986) suggests that "there is no punishment that can make any students learn if they don't want to" (p. 13). In the belief that all students can learn, Iowa's Guide *to Developing Learning Across the Curriculum* is provided for revision, input, clarification, and comment as we begin to "learn" together.

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Appendix A

Incorporating Learning in Curricular Areas

1. Self-Evaluation **Grade Level** ____________

List the learning skills/processes selected by your school district. Check the curricular areas where a specific process will be emphasized. Each skill/process should be emphasized consistently in a number of areas.

	Arts	Foreign Language	Health/Physical Ed.	Language Arts	Mathematics	Science	Social Studies	Vocational Education
1. Remember previous successes with learning.								
2. Recall previous frustration with studying.								
3. Prioritize learning skills to be acquired.								
4. Create a list of strengths and weaknesses related to the learning process.								
5. Identify what motivates own learning.								
6. Complete three self-assessments on learning skills.								
7. Analyze results of self-assessments.								
8. Draw conclusions from data collected.								
9. Devise a plan for improving and developing personal/class learning skills.								
10. Implement the learning skills improvement plan.								

Adapted from *A Guide to Developing Higher Order Thinking Across the Curriculum*, Iowa Department of Education, 1989.

Reprinted from: McKay, J. & Montgomery, J. (1990) A Guide to Developing Learning Across the Curriculum. Iowa Department of Education.

Appendix A, continued

2. Goal Setting **Grade Level** ____________

List the learning skills/processes selected by your school district. Check the curricular areas where a specific process will be emphasized. Each skill/process should be emphasized consistently in a number of areas.

	Arts	Foreign Language	Health/Physical Ed.	Language Arts	Mathematics	Science	Social Studies	Vocational Education
1. Describe the characteristics of effective goals.								
2. Describe situations in life when the goal-setting process can be used.								
3. Use the goal-setting process in the classroom and outside of school.								
4. State a goal in writing.								
5. Identify a time frame to reach this goal.								
6. Imagine accomplishing the goal.								
7. Write an action plan to accomplish the goal.								
8. Identify, periodically, the next steps to take to accomplish the goal.								
9. Estimate the time needed to complete each step of the plan.								
10. Evaluate the relationship between the goal and the action plan. Will completing the action plan lead to attaining the goal?								

Grade Level ________

3. Time Management

List the learning skills/processes selected by your school district. Check the curricular areas where a specific process will be emphasized. Each skill/process should be emphasized consistently in a number of areas.

	Arts	Foreign Language	Health/Physical Ed.	Language Arts	Mathematics	Science	Social Studies	Vocational Education
1. Brainstorm things to be done.								
2. Prioritize the list with A-B-C method.								
3. Use time management skills in planning for a specific activity.								
4. Design a time schedule for a school day or activity outside of school.								
5. Review the time schedule if necessary.								
6. Share time management tips with other students.								

4. Monitoring Attitudes

Grade Level____________

List the learning skills/processes selected by your school district. Check the curricular areas where a specific process will be emphasized. Each skill/process should be emphasized consistently in a number of areas.

	Arts	Foreign Language	Health/Physical Ed.	Language Arts	Mathematics	Science	Social Studies	Vocational Education
Attention Control 1. Discuss importance of attention control.								
2. Describe situations when attention control is needed.								
3. Take steps to improve concentration by identifying thoughts that should be bracketed.								
4. Practice bracketing during instruction.								
5. Demonstrate the key components of the attention control process.								
6. Assess own concentration.								
Power Thinking 1. Define affirmations, power thinking, visualization.								
2. Describe impact of power thinking.								
3. Discuss whether attitudes and thoughts affect own behavior.								
4. Practice the process of power thinking.								
5. Keep a log or journal about experiences with power thinking.								
6. Share power thinking experiences with others.								

5. Motivation **Grade Level** ___________

List the learning skills/processes selected by your school district. Check the curricular areas where a specific process will be emphasized. Each skill/process should be emphasized consistently in a number of areas.

	Arts	Foreign Language	Health/Physical Ed.	Language Arts	Mathematics	Science	Social Studies	Vocational Education
1. Discuss the importance of motivation.								
2. Analyze what motivates the individual student.								
3. Identify rewards or incentives that are used to motivate students.								
4. Develop techniques for evaluating the relationship between the quality of a product and the motivation to produce the product.								
5. Know the difference between extrinsic and intrinsic motivation.								
6. Practice self-motivation as a learning skill.								

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Appendix A, continued

6. Locating Information **Grade Level** __________

List the learning skills/processes selected by your school district. Check the curricular areas where a specific process will be emphasized. Each skill/process should be emphasized consistently in a number of areas.

	Arts	Foreign Language	Health/Physical Ed.	Language Arts	Mathematics	Science	Social Studies	Vocational Education
1. Distinguish between fiction and nonfiction, print and nonprint.								
2. Identify encyclopedias, dictionaries, pictionaries, and other reference tools.								
3. Locate specialized reference sources such as biographical and geographical dictionaries, special sports or science encyclopedias, Childrens Magazine Guide, atlases, thesauri, almanacs, quotation dictionaries, etc.								
4. Use sources such as microfiche/film readers and printers, photocopy machines, bibliographies, database guides and aids, newspaper indexes, etc.								
5. Use local resources such as telephone directories, newspapers, etc., to develop a community-based project.								
6. Identify services and materials provided by information networks and electronic databases.								
7. Use an electronic database.								
8. Define cost considerations regarding on-line vs. manual searching of databases.								
9. Outline steps for obtaining information from community sources: certified birth certificate, passport, marriage license, automobile title, drivers license, tax forms, etc.								

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Appendix A, continued

Grade Level ___________

7. Selecting Information

List the learning skills/processes selected by your school district. Check the curricular areas where : specific process will be emphasized. Each skill/process should be emphasized consistently in a number of areas.

	Arts	Foreign Language	Health/Physical Ed.	Language Arts	Mathematics	Science	Social Studies	Vocational Education
1. Distinguish between fact and opinion in newspaper and magazine editorials, written or taped speeches, television programs, and television advertisements.								
2. Recognize supportive detail and make inferences.								
3. Recognize trends and patterns on a given topic over time.								
4. Cite examples of cause and effect in relationships.								
5. Recognize forms and effects of bias, both favorable and unfavorable.								
6. Make inferences based on individual feelings.								

8. Organizing Information **Grade Level____________**

List the learning skills/processes selected by your school district. Check the curricular areas where a specific process will be emphasized. Each skill/process should be emphasized consistently in a number of areas.

	Arts	Foreign Language	Health/Physical Ed.	Language Arts	Mathematics	Science	Social Studies	Vocational Education
1. State the basic skeletal form of an outline.								
2. Recognize outline form and practice using it in oral and written presentations.								
3. Use precise-writing or summarizing as a form of note taking.								
4. Illustrate effective summary writing by using a variety of sources.								
5. Create own system of note taking for responding to reading or lecture.								
6. Demonstrate accurate note-taking skills.								
7. Use study guides as a means of structuring individual reading.								

Appendix A, continued

9. Communicating Information **Grade Level**____________

List the learning skills/processes selected by your school district. Check the curricular areas where a specific process will be emphasized. Each skill/process should be emphasized consistently in a number of areas.

	Arts	Foreign Language	Health/Physical Ed.	Language Arts	Mathematics	Science	Social Studies	Vocational Education
Reading 1. Develop vocabulary skills in content area.								
2. Utilize comprehension skills in content area.								
3. Practice reading-related study skills in content area.								
4. Use pre-reading activities to enhance comprehension of assignments.								
5. Facilitate after-reading activities to develop recall of assignments.								
Writing 1. Use writing activities as a means of discovering knowledge and learning what the student knows.								
2. Use writing as a process including opportunities for pre-writing, drafting, revising, editing, and sharing.								
Speaking 1. Demonstrate effective oral communication skills in conversation, discussion, and social interactions in the classroom.								
2. Develop skills in public speaking, discussion, and debate to clarify issues and present information.								
3. Interpret literature through use of prose, poetry, and plays.								
Listening 1. Develop listening skills in receiving information.								
2. Interpret messages received in a variety of ways.								
3. Practice listening skills through corrective feedback during classroom activities.								
Media 1. Demonstrate use of audiotape, film, computers, etc., in classroom activities.								
2. Use media to enhance communication process.								
3. Use media to facilitate individual and group instruction.								

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10. Memory Training **Grade Level** ___________

List the learning skills/processes selected by your school district. Check the curricular areas where a specific process will be emphasized. Each skill/process should be emphasized consistently in a number of areas.

	Arts	Foreign Language	Health/Physical Ed.	Language Arts	Mathematics	Science	Social Studies	Vocational Education
Deep Processing 1. Generate images about information.								
2. Generate verbal information.								
3. Generate physical sensations.								
Remembering 1. Realize memory can be improved.								
2. Analyze effects of attitudes on memory.								
3. Practice memory skills such as organizing ideas, self-recitation, spacing reviews, and employing mnemonics.								
Relating 1. Think of ways to personalize the material.								
2. Practice techniques of "chunking" material.								
Test Taking 1. Anticipate test questions at various levels of cognition.								
2. Record feelings and changes in attitude toward test taking.								
3. List the steps in preparing for an exam.								
4. Compare techniques for preparing for an essay vs. objective test.								
5. Analyze test errors to determine pattern.								
6. Practice relaxation exercises before test.								
7. Practice power thinking before test taking.								

COMMITTING TO CRITICAL READING: CRITICAL READING INSTRUCTION IN PRE-SERVICE AND IN-SERVICE EDUCATION OF TEACHERS

Myra E. Morris-Peo

Critical reading can be a learned skill; therefore, it is one of the ways to proselytize critical thinking. Pre-service and in-service teachers at all levels, and in all disciplines, need instruction in teaching critical reading within context. For many teachers, commitment to learn the skills is the mandatory first step.

Reading itself is communication between the writer and the reader. Even stated more succinctly, reading is comprehending the written words. Many people can decode words without knowing what was processed. Also, when comprehension does occur, it happens at several levels - literal, interpretive, critical, and creative. In some texts there is another level included after the interpretive which is called applied. As recently as 1978, Herber defined reading comprehension as a three-leveled process - literal, interpretive, and applied. At the same time, C. B. Smith, S. L. Smith, and Mikulecky (1978) used a different label, elaborative level, for nearly the same concept. In each it was suggested that the reader have a third and terminating level, a process where the information is applied to other knowledge or where new thoughts are stimulated. Nowhere was critical thinking as such urged.

Now, in the last decade of this century, literal reading dominates all reading instruction. Literal reading is necessary and desirable. Here the readers use only the information explicitly stated (Rubins, 1983). Although this is the lowest level of comprehension, it should not be construed that reading for details to gain facts that are explicitly stated is unimportant. Rubins stated, "A fund of knowledge is important and necessary; it is the foundation of high-level thinking" (p. 41). Unfortunately the vast majority of instruction involving reading never gets beyond the foundation level; some estimates go as high as ninety percent. There are many reasons for this: often there is more material for a teacher to cover than there is time to accomplish it; far too many harassed teachers seldom get beyond this stage themselves; literal knowledge is easy to test and evaluate; and, teachers, particularly secondary teachers, often do not know how to teach at higher levels of cognition. Academia has been aware of the need for greatly increased emphasis on critical reading for decades; in 1906 Heuy, a reading researcher, published his belief that reading should be a thought provoking process.

Teachers of literature have attempted to promote the interpretive reading level routinely. Well into the latter half of this century, an unfortunate common practice was that of the instructors accepting only those interpretations which coincided with theirs. Today it is hoped that a student's views are honored providing they adhere to material found in both the surface structure and deep structure of the sentences as well as faithful to the semantics.

The Wizard of Oz remarked in the film, that if he could not give wisdom, he was able to give diplomas. The emphasis on the critical in thinking as applied and understood through reading, can and should help alleviate the diplomas rather than wisdom.

Robinson (1978) believed that critical reading is the judgment of validity, or worth of what is read, based on sound criteria or standards developed through previous experiences. Hopefully it commences in the primary grades with the simple request for students to analyze the illustrations in their books for appropriateness and accuracy. In stories, students may be asked if the characters acted as they would; therefore, the students' experiences and their ability to draw on them control the level of critical reading. Toufexis (1991) believes that the individual is based on what one is taught, experiences, and remembers. Unless students are given ample opportunities to evaluate the authenticity and accuracy of information, like many adults, they may have the attitude that any statement that appears in print may be accurate. As students mature, it is hoped that insights mature; yet, when the students are faced with situations that call for careful evaluation, there is no assurance that they will respond appropriately unless the odds are raised by instruction that provides encouragement of critical thinking.

Numerous abilities must be accomplished in teaching for critical reading. When the student develops these abilities, his reading ability is increased; when they are neglected, the result may be an inept and uncritical reader. Some of these prerequisites are:

1. The ability to recognize and comprehend the general and technical words
2. The ability to deal with figurative language
3. The ability to recognize the writer's main idea
4. The ability to summarize, paraphrase, or precis what has been read
5. The ability to recognize writing patterns such as cause and effect
6. The ability to determine the writer's point of view, prejudices and intended audience
7. The ability to comprehend the inferential
8. The ability to recognize literary devices such as satire, irony, and humor
9. The ability to detect mood or tone (Davis, 1968)

Poor teaching assumes that students have the prerequisite skills for critical reading; good teaching is aware that critical reading is not a skill that is acquired at once, but rather it is a developmental process that is a continuum. Chase (1961) suggests that there are two kinds of illiteracy that threaten civilization. One is non-reading or failure to crack the first code. The second he calls the "higher illiteracy," wherein people who can read are incapable of thinking and feeling while they read.

Critical thinking does not happen automatically. Well-formed questions can give students an inquiring attitude. If the teacher's questions require nothing more than immediate recall, reading for detail is reinforced, and critical reading skills are neglected. There are no age parameters upon asking questions which relate materials read to the student's experiential back-ground and personal involvement. Questions that require divergent thinking such as requesting that the students elaborate or expand in order to generate new ideas are desirable. Also, asking students to give alternative interpretations of given information brings forth the desired critical thinking. Divergent comprehension at higher levels encourages multiple answers to questions, usually assuming that readers can justify or support their answers effectively.

Ultimately, the teacher hopes to be phased in where they use the questioning process on their own while reading. If this is followed, the students develop a process of reading called active comprehension (Singer, 1978). Constant teacher questioning can become a dependency for students which works against critical thinking. Group work where students follow teacher modeling as question creator and interrogator serve as excellent training for the desired state of active comprehension.

In subject-matter instruction, students are encouraged to think and read about the subject critically. Another productive way of introducing the concept of critical reading is to review propaganda techniques. Propaganda is language that invites people to respond emotionally, more or less immediately, and in an either- or manner. Although propaganda is not always either "good" or "bad," the reader should be cognizant of being exposed to it. All communication, but especially this type should be analyzed critically. By exposing students to propaganda techniques such as cardstacking, authority, transfer, and name calling, the need for critical thinking is illustrated even further.

Teachers in every content area can use newspapers and magazines in their classes as instructional aids. They treat a wide variety of subject matter, and are highly motivating to secondary students because the focus is on the present. Newspapers have the added advantage of presenting a fresh set of materials every day. Magazines enable students to pursue special interests in depth. Both are particularly fertile areas for critical reading activities. Even the less academically capable students, who have great need for critical thinking, can have success in analyzing the materials in these less formal publications.

Critical reading involves making judgements which are influenced by personal bias. Attitudes can cause teachers and students alike to respond in a predetermined way to what is read. Most young people are not fully aware of these powerful forces within themselves that can conceal the truth from them (Thomas & Robinson, 1982). Helping students overcome the force of personal bias can be a challenge that makes great strides in critical thinking.

On beyond the critical level of reading is the creative level. This level requires the students' involvement with information presented as they formulate or rethink ideas. Readers are best able to think creatively about what they have read when they know what the author has written, have made interpretations basic to their purpose, and have evaluated the relevance of the information. Often this level is viewed as the culminating one.

Teachers for the most part are intelligent, dedicated people. If they know how to do something that will benefit their students, they are quick to embrace it. Elementary teachers are sincerely apt to get into critical reading as graduate students. By that time they have sufficient education and experience that they grasp the concepts and embrace the practices. The greatest concern is the secondary teachers. Pre-service secondary teachers in most of our states take a course in secondary reading, often called content reading. In Missouri it is a course bearing two hours credit. It isn't enough time to do the best job possible; however, most profit from it and some do so greatly. Fortunately, some secondary graduate reading courses are available; sadly, only a few of the graduate students come voluntarily for most of them are those needing such for certification. Seldom are they required in a graduate sequence. Most currently employed secondary teachers have had no work in supervision of secondary reading assignments. They have been "grandfathered," or ex post factoed out of the requirement. In-service is the way to reach these teachers, but there are two problems here: 1) Drugs, sexual activity, abuse, severe discipline problems, and very serious diseases, often seem more pressing than critical reading; although critical thinking might help to prevent some of the aforementioned. 2) There are not enough people educated and experienced in both secondary education and reading to come across as credible presenters to an already doubting group. It is hoped that eventual retirement of the highly experienced teachers does not prove to be the long term solution.

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USING MNEMONICS AND VISUAL IMAGERY TO FACILITATE CRITICAL THINKING

Mary Ann Smorra

Imagine the setting ... it is a couple of weeks prior to midterms ... the "Principles of Learning" classes have completed their study of four groups of learning theorists - representing eighteen psychologists/ theorists and their respective theories, major components and related applications. Although stalwart, the students are concerned about their performance on the exam. What can be done to provide a thorough review, leading them to an understanding and personalization of the material, which will allow them to integrate the material using creative and critical thinking skills?

A mnemonic device called loci came to mind. Loci is a strategy which uses visual imagery and memory locations to assist in the encoding and retrieval of information. The inventor of loci was the poet Simonides (circa 500 B.C.). Evidently Simonides had been chanting a lyric poem at a banquet. He was called out briefly to take a message, however, during his absence the roof of the banquet fell in, mangling the quests beyond recognition. Simonides, in recalling who had been sitting at each place was able to identify each departed guest.[1] Nothing quite that dramatic was planned for my students, but, I did expect them to associate each group of theorists with a place - loci means place. The place, loci or location were four different rooms of a house which represented each group. In addition, for the room of the group with whom they were least acquainted, the students associated theories and components with decorative items, furniture and /or architectural details in the chosen room.

Now that a brief description of the "task" has been given, I will proceed by describing briefly the context into which loci fits. The overall framework is the Atkinson and Shiffrin informational processing model which provides three types of information storage: sensory register (short term sensory memory - one to three seconds), short-term memory (working memory - twenty seconds) and long-term memory (possibly permanent storage).[2]

Three cognitive processes working to hold information in the short-term memory while encoding and transferring it to long-term memory for later retrieval are rehearsal, elaboration and organization.[3] Specifically, elaboration strategies provide the underpinnings for mnemonic devices. The elaboration strategy is a cognitive process which extends or embellishes given information to make it more meaningful. A bridge is constructed to build associations between mental images and the material to be remembered.[4] A mnemonic device facilitates the organization and encoding of information through the development and use of cognitive cuing structures. In effect a mnemonic provides an "artificial memory."[5] It builds a scaffolding to construct relationships where none appear. Familiar acronyms include chunking, rhyming, acrostics, acronyms, pegwords and mediators.

Loci is a mnemonic device which uses visual cues. These visual images of places provide the encoding and retrieval cues for the information to be learned. Referring back to Simonides, loci was a technique described in the Roman books on rhetoric used by orators to memorize their speeches.[6] Currently, the technique can be simply stated as (1) forming a series of places that are memorized in order and that can be imagined as clear visual images, (2) associating images of things which represent key points, concepts, ideas, etc., (3) placing a specific image in each location, (4) visualizing each place and retracing steps - using each place as a cue while retrieving and decoding each image.[7] Originally "real places" were derived from a person's experience, however, imaginary locations can be created in the imagination as well.

Thus far I have simply given a cursory background on the mnemonic device, loci, and the framework in which it fits. Following is a brief description of how I used loci with my students, its effect when coupled with a relaxation technique and guided imagery, and its usefulness with critical thinking.

As mentioned earlier, the students had come to a point in the semester to "analyze, synthesize and evaluate" the information concerning theorists included in the four groups of Humanistic, Behavioral, Developmental and Cognitive psychologists/theorists. A multi-faceted question presented itself. How might they personalize, reflect on and use this information to create a cognitive framework from which they could glean the information in a relational manner not by rote memorization?

A variety of approaches which included color coding to game formats, information outlines, individual presentations and reports had introduced and developed the material. Now, it was time to effectively integrate the information into a usable structure for these future teachers. The midterm exam was approaching and the motivation to do well also added an affective factor - test anxiety. A relaxation technique to introduce the activity served to alleviate anxiety during the activity.

In implementing the loci technique, the following occurred. As an introduction, the students were led into the guided imagery using a relaxation technique. Continuing, the guided imagery directed them through part one. Part two was done individually. The goal of the loci was two-fold: (1) given the guided imagery, the students were to associate and place each major group of learning theorists into a room or delineated space in a house. The house could either be their own, one they had seen, or a completely imaginary one; (2) given the group of theorists with whom the individual was least familiar, each student was to design a room for that group which paired and associated the components of their theories with decorative items, furniture or architectural details of the room. Following part one, notes were taken on the visualization of the house and the general placement in the rooms. The detailed "floor plans" were developed and completed as a follow-up to the guided imagery.

Students then used their visual representations of the house and subsequent floor plans as study aids. An advantage of the guided imagery was (1) a relaxed receptiveness to the review of information, (2) a lessening of anxiety in approaching the midterm as the information was "owned" by the learner. The loci method allowed: (1) a creative and thought-provoking approach to a review of information; (2) a means by which the information could be replayed and remembered for further reflection, integration and evaluation.

In both parts one and two of the loci activity there were similarities and differences as to where students placed key points. In part one a broader response was evoked in placing each group of theorists (Humanists, Behaviorists, Developmentalists and Cognitives) in a different room or part of the house. The information that was associated with the location was more general and seemed to elicit more similarities in responses. Association was directed at the purpose of the room as opposed to pairing an object with a key point. That was done in part two.

An example of like images was the group of Humanists - they were often placed in the living room or family room. Comments defined these locations as rooms where members of the family would come together, be themselves, accept each other, express their feelings, learn from each other; these people care about and respect each other; it is an inviting room with a fire in the fireplace. These comments do underline many key concepts espoused by the Humanists and allowed the students a way to recall information in a relaxed yet focused manner. An interesting singular comment from a student about the Cognitive psychologists's room placed them in her grandmother's bedroom. She felt her grandmother who is 70, has built up her knowledge through the years, little by little going from the simple to complex (like a spiral curriculum)!

Although part one of the loci may sound almost simplistic or at any rate - too much fun, its value in relaxing students about learning a large amount of information, organizing the material and cuing them as to what areas need reinforcement, has been reflected positively in most feedback sheets. Part two proceeded with an in-depth view of the material.

Part two of the loci activity is more specific and allows the learner to use resources to identify the key points which will be associated with object images and placed in the room. The students are asked to choose the group of psychologists with whom they had most difficulty in part 1. Once again, there are similarities and differences in responses. An often used image is a spiral staircase (sometimes found in the library) for Bruner's spiral curriculum. This concept is also paired with a braided rug. Gagne's Intellectual Skills hierarchy often found itself climbing up stairs, bookcases or even china closet shelves. One behavioral theorist was placed in the closet because the student so strongly disagrees with his views that she felt that was where he belonged!

Three of the six classes involved in the loci activity proceeded to part two in creating the room for a specific group. From their comments, it appears that this is a valuable exercise particularly because it's directly related to what the student perceives she/he needs to study. The value to part one was as an assist in organizing the information. It must be noted, however, that for those students having difficulty with visual imagery the loci method was not helpful. Other mnemonic devices, however, are possibilities.

A primary goal in implementing the loci method was to enable the students to access the information in order to respond to problem-solving situations in the field as well as to critical thinking questions on an exam. Due to their awareness as information processors in the utilization of a specific cognitive strategies - loci, they developed metacognitive skills, which can be applied to numerous learning situations. In addition, information acquired through mnemonic instruction is not simply recalled at a rote memory level. It is utilized, often better, in a variety of thinking contexts.[8] With specific reference to Levin's use of mnemonomy and botany, these thinking contexts include decision-making and creative problem solving. Mnemonics were also found to facilitate performance on higher-order transfer tasks. Completion of these tasks relied on successful accessing of pertinent factual information.[9]

Granted, although this brief paper is not a statistical report, it can be said that for the majority of students who were able to use their visual imagery and concurrent loci reported a feeling of success, confidence and enjoyment in employing the technique. Their use and discussion of the information reflected the aforementioned comments. The ability to image in the mind's eye - to manipulate and reflect on internal visual images, did have an effect as to how well loci could be used. Aside from developmental factors, there is variability in the extent to which individuals can experience visual imagery.[10] With regard to mnemonic devices, as with any learning strategies, care must be given as to the learning situation in which it is used. Educational implications, however, are far-reaching for mnemonic devices, particularly loci for optimizing recall performance in conjunction with providing valid memory underpinnings for critical and creative thinking.

Endnotes

[1] Allen Paivio (1971). *Imagery and verbal processes*. New York: Holt, Rinehart and Winston, Inc. p. 154.

[2] Robert Biehler and Jack Snowman (1990). *Psychology applied to teaching*. Boston: Houghton Mifflin Company. pp. 379-382.

[3] *Ibid*. pp. 382-389

[4] Clare F. Weinstein and Richard E. Mayer. "The Teaching of Learning Strategies," *Handbook of research on teaching* (3rd ed.), edited by M. C. Wittrock (New York: Macmillan, 1986), p. 319.

[5] Francis S. Bellezza, "Mnemonic Devices: Classification, Characteristics, and Criteria," *Review of Education Research*, Vol. 51, No. 2, 1981, p. 253.

[6] *Ibid*. p. 251

[7] Jack Snowman, "Explorations in Mnemonic Training." *Imagery and related mnemonic processes*, edited by M. A. McDaniel and M. Pressley (New York: Springer-Verlag, 1987) p. 379.

[8] Paivio (1971). p. 155

[9] Mary E. Levin and Joel R. Levin, "Scientific Mnemonomies: Methods for Maximizing More than Memory," *American Educational Research Journal*, Vol. 27, No. 2, 1990, p. 315.

[10] Bellezza (1981). p. 250.

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SPECIFIC TECHNIQUES

Specific Techniques

In each of the papers included in this section, there is a focus on a particular curricular area, pedagogical approach, or on learners with specific characteristics or needs.

Barbara Presseisen, in "Teaching Critical Thinking in History and the Social Sciences," considers the application of critical thinking principles to these disciplinary areas. Contrasting a critical thinking model of teaching with one that emphasizes the transmission of "factual" information, Presseisen discusses the need to "help learners think alternatively about the explanations that are offered...to argue from a point of view that they can and want to defend." The need for resources beyond basal texts, and for goals beyond knowledge, skills, and dispositions, is emphasized.

In "Health Issues and Critical Thinking: Understanding the Impact of Television," Nurit Guttman describes the "cultivation" by the mass media, particularly television, of our conceptions of health-related issues. Among these are emphases on life styles based on consumption, biomedical approaches to illness, and the "gratification of individual needs rather than social responsibility, with institutional and political factors as contributors...ignored or belittled." Guttman asks, "How can one compete with messages that offer instant and easy solutions (consumption of goods) to complex psychosocial issues?" She suggests the application of critrical thinking educational approaches to understanding the impact of the mass media on our public and private lives.

Margot Brandes, in "Fuse News and Views: A Partnership in Media and Writing," suggests the use of newspapers as text material in basic writing classes. Newspapers, she asserts, provide an "awareness of the contemporary," and serve as a valuable instrument of democracy. Current newspaper material provides opportunities for critical analysis, and for natural skill development. Editorials help students understand the uses of argument in evaluating news events. Debates on public issues, identifying propaganda devices and word usage, analyzing advertisements, and other techniques, are suggested.

In "Social and Cognitive Aspects of Literacy: Integrating Diverse Teaching Approaches," Nathalie Bailey discusses several diverse approaches to developing students' literacy in a second language. These approaches are drawn from both social and cognitive theories of literacy development. Among current pedagogies in the field of English as a Second Language, Bailey includes social interaction, reader response, content-based instruction, and formalism.

Gloria Pierce, in "Critical Thinking in the Workplace," describes a number of pedagogical techniques that she reports are used effectively in working with adult learners in employee-development programs in business settings. Many of these techniques have implications for other settings, as well. Pierce notes, for example, that critical thinking in the workplace requires analysis of unintended outcomes of practices, of the validity of assumptions and criteria, and of alternative perspectives and courses of action.

Bill Rosenthal describes an innovative approach that he has designed for a non-major mathematics course at Ursinus College, in "Humanistic Calculus: A Pedagogy for the Repressed." The course involves the following themes: interdisciplinary rationality and social construction; language, symbolic dialect, and academic discourse, students' subjective experience as valid text, and the social relations of the classroom; Rosenthal discusses his pedagogical ideas relative to each of these themes.

In "Moral Education/Ethics and Critical Thinking: A Seminar for High School Seniors," Gene Simakowicz describes an American Ethics Seminar designed to help students understand their own value structures. In this seminar, each student assumes responsibility for facilitating discussion on self-selected issues. They are required to "tell why and from what foundation [a] belief is taken."

Critical thinking is the catalyst for achieving creativity in the humanities in general, and in religion in particular, according to Richard Penaskovic. In "The Nexus between Creativity and Critical Thinking," he examines the concept of creativity and provides suggestions as to how critical thinking might be incorporated into religious studies.

Donald Small and Helen Brantley, in "Behavior Modification: Thinking and Testing," present a behavioral model for involving non-traditional, underprepared learners, in the educational process. They describe obstacles to academic achievement among such students, and present motivational techniques they have designed, with the intention of preparing students for critical thinking.

In the final paper of the section, Di Lorenzo, Oxman-Michelli, and Weinstein describe three approaches to the professional education of teachers. Their report, "Critical Thinking: Three Models to Help Teachers Improve their Practice," presents their experiences with in-service and professional teacher education programs in the hope that "these brief indicators of what we are doing will prompt others to think broadly about what can be done. "

TEACHING CRITICAL THINKING IN HISTORY AND THE SOCIAL SCIENCES

Barbara Z. Presseisen

Introduction

There are few educators who would not find value in introducing "critical thinking skills" into the study of history and the social sciences. In disciplines where so much information and data abound, it seems consistent with good common sense to suggest that being "critical," or perhaps "selective," or even "evaluative," is a good idea. When it comes to teaching thinking in the classroom (K - 12), what does such a proposition mean? How does such a position influence one's view of the history curriculum in particular, and the instruction of learners in general, in current American schools? These are the major questions addressed in this study and by the conference workshop presented at the Institute for Critical Thinking's annual conference.

Roots in Cognitive Education

The origins of this study are part of a larger interest in teaching thinking that involves a variety of thinking skills and their organization into more complex cognitive processes (Presseisen, 1990, 1991). The so-called "cognitive revolution" of the past decade has focused a great deal of academic interest on how students learn to think, how thinking influences the development of intelligent behavior, and what educators can do to make teaching and learning more consistent with what research determines is the basis of sound cognitive development (Costa, 1991).

Critical thinking is only one of the so-called "higher order thinking processes," and much recent educational literature exists to discuss the intricacies of its particular and differing "skills" (Beyer, 1988). Ideally, to be critical usually involves developing multiple abilities and dispositions that help the thinker "decide what to believe or do" (Ennis, 1986). Interpretation and deliberation are involved, often evaluation or assessment and, finally, judgment — backed up by justification and reflective, elaborated understanding (Hunkins, 1991). The more dispositional side of critical thinking expects that critical examiners have developed a repertoire of skill that transfers from one particular instance to another; they create a "way of problem solving" or a kind of metacognitive strategy that can be generalized or internalized in their approach to larger bodies of information (Perkins & Salomon, 1988; Sternberg, 1987).

The question that arises is what does such an approach mean when you apply this model of thoughtfulness or expectation to particular content areas like history and the social sciences? Why would a critical thinking goal for curriculum and instruction be appropriate for teaching these disciplines? And in what ways might such an approach *not* fit the classroom needs of students in such courses?

History and Critical Understanding

Before addressing the question of teaching history critically, one might well ask what definition of history do most teachers actually employ in the classroom? Textbooks all-too-frequently appear to be compilations of large bodies of fact, not in particular great depth, and often focused on chronological sequence and the reading levels of students more than on cognitive abilities or learner interest (Vogel, 1991). In the United States, history is largely treated as information and data to be covered, called up by simple recall — to be used in very specific activities —tested, and, unfortunately, often forgotten. There are beginning to be a few exceptions to this pattern. (Stearns, Schwartz, and Beyer, 1989).

There also appear to be some differences appearing in the world of professional historians. Questions are arising with regard to how one actually writes about the past, what information is addressed, what sources are used, how text needs to be interpreted (Schama, 1991; Wineburg, 1991). Is history events as they really happened, as Ranke proposed? Or is history a fable agreed upon, as Napoleon chided? In these days of cultural pluralism and argument about ethnocentric biases, what can critical thinking offer to the Academy (Ravitch, 1990)? Can critical thinking be used as an approach that can inform a student about the complexities of detail in studying the myriad of information that exists, while, at the same time, provide the learner with a means for organizing and sorting that body of knowledge for long-term, practical ends? Therein lies the challenge of incorporating critical thinking into the history curriculum.

Critical Thinking and Teaching History

A critical thinking approach might suggest that a "whole history" approach to the study of past events, such as has occurred in the teaching of language arts, might also be appropriate in the history curriculum. More varied literature and media might need to be introduced to students in lieu of the basal textbook, and an elaboration of the abilities and dispositions called for in critical analysis more carefully related to student assignments and the pursuit of points of view or supportive argument. It is not unusual to dwell on language and meaning in the teaching of critical thinking. There are similar needs in the teaching of history. The problems of foreign language translation, as well as cross-cultural applications are not trivial parts of understanding history (Kent, 1941). The recent impact of anthropological data and ethnoarchaeological studies add to the richness of historical bases.

Newmann (1988) lists five challenges to the social studies that, in fact, would also serve an integration of history and the social sciences around common themes of critical thinking. These are: empathy, abstraction, inference, evaluation and advocacy, and critical discourse. These challenges do not remove the need, in any history course, to delineate specific knowledge (information), skills, and dispositions that ought to be included in curricular planning. But they also suggest that such bases are not sufficient, that instruction has to be geared to higher goals and rooted in materials that will develop a student's active understanding of how history is "constructed." Supportive materials from other social science disciplines can be added to a curriculum to help a youngster understand the complexities that are common to the human condition in these past eras. While we might think that history is in the business of delivering scientific, objective, universally applicable truths, we need to help learners think alternatively about the explanations that are offered in their courses of study (Kaye, 1991). We must help students be prepared to argue from a point of view that they can and want to defend. Obviously, when facts are mastered, the critical understanding of history has just begun.

In Conclusion

Teaching critical thinking in history and social sciences may force us to see the history curriculum differently than has been common practice in the United States. While the use of language and extensive text may be the bedrock of such study, interpretation and searching for alternative data and resources to support multiple points of view may be equally valuable to the student of critical understanding. Teachers may need to extend their resources in the classroom beyond basal texts, to seek a variety of documents and media, as developing thinkers can best learn to use them. Finally, greater goals beyond knowledge, skills, and dispositions minimally cast need to be considered. The teaching of history *in depth* is worthy of empathy, abstraction, inference, evaluation and advocacy, and critical discourse, if critical thinking is to be successfully introduced into the curriculum.

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HEALTH ISSUES AND CRITICAL THINKING: UNDERSTANDING THE IMPACT OF TELEVISION

Nurit Guttman

Health is a topic which is often taken for granted by students, who tend to view health as the absence of specific diseases, or perceive it as something that is "objective," "scientific," "medical," and mostly dull. However, engaging students in critical examinations of health related issues offers the teacher an opportunity to re-examine taken-for-granted assumptions about social institutions, organizations, science, mass media or one's self.

Health issues are increasingly pervasive in contemporary life, and students are invariably preoccupied with issues such as HIV infection, alcohol consumption, or physical appearance. Critical examination of these health related topics, which are meaningful to students' lives, can contribute to the development of students' critical thinking regarding various issues. For example, issues such as institutional arrangements in society, the distribution of health related resources, sexual behavior, alcohol related behavior, the production, marketing, consumption of food products, advertising, television, music and politics, all are intimately related to health issues. These issues present teachers with opportunities to apply critical thinking and analyses to health related issues that are increasingly relevant to students.

It is often suggested that Americans are obsessed with health (Brand, 1988), and increasingly many consumer products are promoted as health oriented (Hammond, 1987). We are surrounded by health related messages, in mass media, school, and work organization; some of which attempt to promote our health by urging us to change our lifestyle and adopt "low risk" behavior, while other products are likely to promote one's risk for life-threatening diseases (Arkin, 1990; Atkin & Wallack, 1990).

Health issues present challenges on various levels of analysis. On a macro level, discussions of health related issues can point out how socioeconomic processes affect the health of different members of society. On micro levels, health care issues such as the practitioner-patient relationship can be examined and analyzed as an asymmetric relationship (Hardesty, 1989), which can help in the development of critical thinking of taken-for-granted assumptions about the nature of practitioner-patient interactions (Stein, 1990; Trostle, 1988).

On one hand, many believe that the American health care system provides if not the best, among the very best health care in the world, with highly sophisticated technological equipment and treatment facilities. Yet, despite the enormous resources devoted to healthcare treatment and facilities, many Americans have limited access to health care services (Rosenthal, 1990). This issue can be highlighted to students by pointing out some staggering statistics such as:

*There are 5.5 million children under 6 living in poverty.
*There are about 36 million Americans without health insurance.
*Five times as many people die of diabetes in Harlem than they do in affluent neighborhoods.
*A black man in Harlem is less likely to reach the age of 65 than a man in Bangladesh.

Thus, students can discuss how our perceptions of illness and disease are often influenced by a biomedical perspective, that emphasizes biological causes of illness (e.g. see Tesh, 1988; for a detailed analysis of underlying assumptions regarding diseases). Yet, more powerful explanations of the prevalence of current high incidences of diseases can be linked to the distribution of healthcare resources, and its relation to institutional arrangement in society. The emphasis on biomedical explanations also reflects, according to critics, a growing trend of medicalizing the human experience.

In the Health Communication course, given at the Department of Communication at Rutgers University, one of the ways I introduce students to the notion of the medicalization of post-modern life is by having students read the work of Ivan Illich (Illich, 1975). Ivan Illich argues emphatically that modern medicine has been taking the role of "god," by creating modern day miracles. It also has created increasing demand for medical care, and expectations that medicine can solve human problems, ranging from purely physical to happiness. This results in unrealistic expectations of members of society; for example, people expect to have perfect babies, perfect bodies they want their mood to be controlled, to be happy, and for disease to be painless (Gibbs, 1989). Increasingly medicine intervenes in all facets of our life, or as Illich (1975) and others maintain, our life has become medicalized (Fox, 1977). Issues that used to be defined as part of the domain of morals or religion, (i.e. sin) are now medicalized, for example by using labels such as pathological behavior or disease. More and more social phenomena become identified with "syndromes" or diseases. From birth to death, the lives of members of society are increasingly dominated by medical considerations. I ask students to consider which aspects of their lives have been medicalized, or controlled by medical professionals. Some typical examples are: being born in a hospital; getting vaccinated (cannot go to school without a medical certification); for driving - need eye exam; to get married - need blood test; to get a job - one often needs a physical, and more recently blood tests.

But, the impact of modern medicine is not confined to influencing individual behavior, it also invades, says Illich (1975), the way we express human experiences, particularly by depriving us of the "language of suffering." Health and illness are described in medical jargon and terminology. The individual becomes a "patient" with a specific medical condition: a "case" rather than a human being who experiences human suffering and triumphs.

One of the activities I utilize in my class is to divide the students into groups. Some groups are assigned to agree with Illich's views, and others to disagree. After working in the group, the students present their arguments to the class and debate their positions. The following are some questions a teacher could ask, which can provoke students to question assumptions about health issues (adapted from Horrobin, 1977):

- Is there too much or too little science in medicine?
- Is there too much or too little technology in medicine?
- What are our expectations from medicine?
- How should resources be allocated?
- Who should monitor medical professionals?
- What should be the criteria for accepting individuals to medical schools?

Other types of discussions in class focus on the evolution of medicine from art to science; peaking with the pharmaceutical miracles of the 1930's onward, which have given prominence to the biomedical model of medicine (Engel, 1978) and health care solutions which stress medical treatment interventions, rather than preventive measures, or changes in structural features of society that are related (epidemiologically) to excess morbidity and mortality. A related challenge has to do with the cultivation of biomedical solutions to social issues, and what critics maintain is the medicalization and somatization of life (Fox, 1977). The media's portrayal of technological solutions and dominance of the physicians and the biomedical model can be seen as contributing to the cultivation of anti-public health symbolic environment (Turow, 1989, discusses how physicians maintained control of their depiction on television). Since mass media is a strong cultural influence in our society, students are assigned to keep a "media log" to document and analyze how health is portrayed by the mass media.

The mass media looking glass

Mass media are hailed by some as conduits of modernization and change, as promoters of modernization and effective agents for the promotion of disease prevention. In contrast, critics portray mass media as agents of control or domination. Most of us are heavily exposed to mass media; we love some of what it has to offer, hate some of the rest, and realize that whether we like it or not, mass media have some impact on our life as individuals, as scholars, practitioners, and society as a whole.

Critics of mass media, argue that the mass media, particularly television, not only distort reality, but that the image of the world they portray affects the perceptions of its audiences, particularly those who are heavily exposed to its content. Mass media create a "symbolic environment," in which conservative perspectives dominate. This approach is represented in the work of Gerbner, his colleagues and students, which they label 'cultivation analysis' (Signoricilli, 1990). For example, these researchers suggest that the portrayal of crime on television is related to the way heavy viewers of television perceive crime in society, or that the portrayal of health care sets unrealistic expectations of audience members regarding health care practices and policy (Gerbner et al., 1981; Turow & Coe, 1985).

Americans spend more time watching television than doing anything else, except sleeping, suggest media scholars. In children, prolonged television viewing may be also related to health by decreasing their activity (which is related to obesity; Gerbner et al., 1984). There is a plethora of health related issues on the media. Medical and health related content appear in high frequency in television: on average 5.5. health related scenes appear per hour (Neueundorf, 1990). Daytime serials usually have an audience of over 55 million viewers. Sickness and injury are highly pervasive in these programs. Nearly 50% of the characters are involved in health related episodes (Arkin, 1990).

Health care professionals: Health professional dominate the air - they are seen almost 5 times their actual proportion (but absent from weekend children's TV). Compared to other professions - doctors are good, successful, peaceful, more fair, sociable, smarter, rational, and more stable than nurses. Doctors are mostly male, and work in hospitals. Television doctors are systematically presented as holding a great deal of power and authority, while having the ability to affect positively the lives of whom they care for. In 40% of cases television doctors took great risks to perform unusual treatment and succeeded against odds. (Gerbner et al, 1984). Nurses, however are generally subservient, aloof and female (Turow & Coe, 1985).

Medical condition: Mass media portrays health and illness as a dichotomy, and emphasized acute diseases rather than chronic medical conditions. Illness is presented as an isolated event, often the fault of the person (Fisher et al., 1981).

Medical treatment: Biomedical solutions to health conditions are emphasized over other types of interventions, and that the dominant pattern of illness portrayal does not confront the important issues regarding health policy or health care implementation. The primary ways of treating health problems is through machines and drugs, with a high emphasis on biomedical and technological factors, which are presented as highly accessible to all, with rarely any political or economic factors involved (Turow & Coe, 1985; Fisher, 1981).

Food and drink: Food and drink often appear on television. More than 3/4 of all dramatic characters eat, drink or talk about food. At least 9 times an hour eating or drinking appear on the screen, yet the characters mostly grab a snack and eating is portrayed as a socially gratifying activity rather than a means to satisfy hunger (Cerbner et al.

1984). The most frequent drink on television is alcohol (by more than 30% of the characters drink), next are coffee and tea (Gerbner et al. 1984). Drinking is often presented as a means to deal with stress, or a way to relax with a conversation with a friend, and those who drink, are more likely to be involved in romantic relationships (Taylor, 1990). Characters seldom refuse a drink or show disapproval of drinking. Heavy drinking was excused or rationalized in 39% of the episodes in sitcom cases - the usual mechanism was humor (Signoricilli, 1990). In the past two decades an increase in number of references to alcohol - from ten percent in 1969 to seventy percent in the 1980's. Regular viewers of drama are likely to see more than twenty acts of drinking when they watch one evening of television viewing (Taylor, 1990). Yet alcohol use cannot be easily dismissed as a mechanism for comic relief. Alcohol is used by Americans more than any other drug. Eighteen million Americans suffer from alcohol problems, with a projected increase, and the majority of problems are seen to be caused by light or "social" drinkers (Taylor, 1990).

TV characters: Prime time characters, despite all their eating (junk) and drinking (alcohol), are healthy, very attractive, yet vulnerable to injury (which, especially if they are male, can be "fixed" by the doctors), and are thin (yet most of the population is overweight, suggest Gerbner et al., 1984).

The underlying assumption of the cultivation studies is that people who are heavy media consumers develop beliefs that correspond to what is depicted in that world (Gerbner et al. 1984). Research findings indicate that heavy television viewers tended to have higher confidence in the "magic of medicine" and medical professionals. Implications from a public health perspective are that these audience members may put less emphasis on prevention, since problems can be cured if they arise. Although the cultivation studies have been criticized regarding their assumptions and methodology; nevertheless, the content analysis of television, magazines and other popular media present potent social images which many scholars and practitioners believe have a cumulative impact on the audience members. Advertising relies heavily on this assumption, and supports itself with successful campaigns. One successful campaign is the promotion of "Light"' beers, that introduced a new alcoholic beverage and (contrary to the industry's proclamations) recruited new alcohol consumers. Since we are concerned here with the promotion of public health, the next section presents some implication of advertising to this topic.

Advertising

Some 60% to 80% of newspaper space and 22% of TV time is devoted to advertising. The average viewer who sees four hours of television daily, sees at least 100 to 120 commercials a day. Over the course of a year, the average child watching TV will see over 22,000 commercials promoting consumption, including 11,000 junk-food ads. An increasing number of beer ads (5,000) may also be viewed by youngsters (Gerbner et al., 1982). The alcohol beverage industry spends more that 1 billion dollars a year in the US alone on advertising (Taylor, 1990). Interestingly, both alcohol and tobacco, although they are drugs, are excluded from the Media Partnership for a Drug-Free America campaign - which enlisted talent from the advertising community (Taylor, 1990). Thus, between programs with frequent drinking and advertisements across various media, audience members are saturated with images of drinking associated with sex, romance and relief from stress, with no serious consequences (accept for an occasional alcoholic, who gets rehabilitated after realizing it was all his fault for being an abusive alcoholic).

The messages in advertisements usually tantalizes the audience member to "go for it," "do it," "succumb to it" (currently there are numerous ads for "fat free" products that suggest you can guiltlessly indulge in luscious treats without worrying about the fat). On one hand the message of advertising is that one's body is inadequate and therefore one needs the advertised consumer good (Kane, 1990). Advertisers propose that their product or service will enhance one's image and rectify one's shortcoming. On the other hand advertising messages suggest pleasant excitement and glamor, which can be achieved immediately as the product is consumed (if you can't have sex, at least you can have luscious Sara-Lee cakes, right out of the freezer or in seconds popped in the microwave). Advertising encourages one to indulge and give in without too much thinking to one's cravings, as everyone else seems to be doing.

The issue of advertising also has impact beyond the messages disseminated regarding specific disease-promoting products. Advertising considerations can influence network decisions of what to air through a subtle process of self-imposed censorship, employed to protect the media from loss of advertising sponsors. For example, even when specific products are not advertised (e.g. cigarettes on television or in certain magazines), with the diversification of tobacco companies into food and beverages, they still have important impact on what will be presented on the media (Kessler, 1989). Interestingly, when students are asked how they would feel if the media was saturated with pro-health or other social-issue type messages, they tend to categorize such messages as propaganda.

The subtlety of competing constructions of health issues

Even when television programs ("the disease of the week," as they are labeled by critics) focus more in-depth on health problems such as AIDS, anorexia, alcoholism, etc., they rarely provide a non-medicalized, or nonindividualistic type perspective. These programs usually follow a conventional formula, and the message is that the key to recovery is knowledge about the disease, the self, and one's family members. The causes and cures remain at this level (Turow & Coe, 1987). Currently some programs show more complex treatments, but they are rare (Neuendorf, 1990).

Wallack (1989) cites Gitlin who quotes a network executive: "The networks are always mistaking real social issues for little human condition stories" (p. 363). Thus it can be argued that the portrayal of serious health problems and their treatment ignore structural issues in society. "True to the needs of the sponsors, television movies may make us sad and weepy, but they seldom make us angry or uncomfortable" (Wallack, 1989; p.363). Public health efforts, which are often based on assumptions that emphasize the relationship of social conditions to health promotion, have to compete with this subtle framing of health problems and solutions. It could be argued that even the cleverest Public Service Announcement, would not be sufficient to counter the construction of social reality framed in the television storyline.

Obviously topics such as alcohol consumption demand some critical analysis of the media's portrayal of this and other health related issues. However, in order to demonstrate to students the subtlety of the cultivation process, it is helpful to point out how we implicitly accept messages that offer medicalized solutions, which in our culture are more likely to taken for granted as non-problematic. Not only stories provide subtle frames on health care issues, but ads do as well. For example, many of us are familiar with commercials that promote certain brands of headaches. Typically, we see a stressed worker or parent, who "can't stand it anymore," reaches to a bottle of headache pills. In the next scene, the person is relaxed and smiling, and back to doing the tasks they were engaged in.

One of my favorite examples, which I use in my teaching, is to demonstrate to students how such seemingly benign headache commercials promote the biomedical pharmaceutical solutions to social problems. I show the students a series of taped headache commercials or ads in magazines. In a typical ad, the character has a headache, usually associated with stress as a result of overwork or some difficult conditions (a teacher, a broken washing machine). The solution is a magical little pill. Often the ad claims that one product is better than the others. The framing of the situation and solution is clear cut: certain conditions create a terrible headache, and therefore one should opt for the pharmaceutical solution, preferably the drug in the ad. Content analysis of over-the-counter drugs shows that they offer relaxation, general well-being, and psychological well-being. After taking the drug: frowns turn to smiles, and one can effortlessly resume the dreaded activity (Signorielli, 1990).

An alternative frame would suggest that there are other options of dealing with stress. For example, in the case of the stressed worker, an important question that can be raised is: what kind of circumstances have brought about the stress induced headache? Evidence from the health occupational literature strongly indicates that structural aspects of work conditions are the main causes of stress. Thus, as Karasek and Theorell (1990) suggest in a recent comprehensive review of stress in the workplace, rather than focus on promoting individual coping programs such as behavior modification (or headache pills), one should work to change the conditions that produce such stress. This framing offers a radically different perspective on possible sources of human problems, and what are the alternative solutions to address them.

Another example regarding seemingly "benign" and highly commonplace commercial product, is breakfast cereals. For example, although "Total" cereal commercials can be seen as a blatant attempt in brand competition, it carries implicit health messages that frame the notion of "good food." The ads suggest that this type of product, the commercially manufactured cereal, provides the consumer with "the" healthy breakfast, especially when one chooses "Total" because it provides "total nutrition." In this particular approach, in addition to the misleading message regarding the "total nutrition" (what this product has, in addition to processed wheat, is a dosage of synthetic vitamins, which again represent a chemical solution to health concerns). This breakfast cereal product, presented as highly nutritious, reinforces the industry's framing of a healthy breakfast as one which contains commercially produced cereal (plus toast, processed orange juice etc.). Granted, commercially produced cereals may be healthier than bacon and fried eggs - but it excludes much more nutritious and less expensive alternatives, such as oatmeal purchased in bulk, vegetables, fish or rice. The image of a "healthy breakfast" which is consistently framed by the media is that of expensive breakfast cereals that usually contain high amounts of sodium and sugar. What we see here is a powerful concept, which has lately been expanded to include the notion that breakfast food should also by "fun" and not "dull," both for children and adults. As a former president of the Society of Nutrition Education laments that food manufacturers and their advertisers have changed eating patterns: "Until we in nutrition education understand how they have achieved this .. we can teach the four food groups until we are blue in the face.. while American eating habits go down the drain" (Joan Gussow, cited in Mannof, 1985 p. 15).

What is actually cultivated by mass media (even in countries where broadcast media is governmentally controlled) is a lifestyle of consumption (e.g. Wallack, 1989), with an emphasis on the gratification of individual needs rather than social responsibility, with institutional and political factors as contributors to socio-economic and health problems ignored or belittled. And these frameworks or messages are presented in sophisticated visual imagery that the audience members need to find new ways to combat the cultivation process, or as Neil Postman citing Bertrand Russell suggested (on a Bill Moyers PBS television production Consuming Images): "WE NEED DEFENSES AGAINST THE SEDUCTION OF ELOQUENCE."[1]

The challenge posed by Postman to critical thinking is twofold: First we need to study why it seems so hard to make "logical/rational" arguments against such consumerism life-style images as presented in the mass media. And secondly: how can the dull, anti-fun/promoderation-pro-health messages compete with the seductive "go-for it" cultural messages, if we intend to promoted better health? How can one compete with messages that offer instant and easy solutions (consumptions of goods) to complex psychosocial issues? How can we reframe fun and happiness, that do not necessarily include consumption of consumer goods?

This paper presented several examples of how health related issues have been used to stimulate students' critical thinking on topics that are important both in thinking about theoretical issues, and are also relevant to contemporary life. It has been argued, that we can benefit from analyzing taken-for-granted assumptions that relate to health and illness, and that they can lead to exciting and provoking discussions in and outside the classroom.

Endnote

[1] Music videos and rock music, which are an important part of adolescent culture, are another example of competing "eloquence." It is suggested that the images of explicit sexuality, often associated with violence is in direct conflict with health messages of rationality and moderation (Brown & Hendee, 1989).

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FUSE NEWS AND VIEWS: A PARTNERSHIP IN MEDIA AND WRITING

Margot Brandes

Thomas Jefferson once wrote, "Were it left to me to decide whether we should have government without newspaper or newspapers without government, I should not hesitate to prefer the latter. But I should mean that every man should receive those papers and be capable of reading them."[1]

The newspaper in a democracy still plays a key role in informational mass media to help in developing an intelligent public capable of acting logically for the common good. Newspapers in the classroom, then, can serve as a valuable resource for those students striving to be part of the general voting population, the force that helps to shape their own lives.

If a main function of a newspaper is to inform free citizens in a free society and if a final aim of education is to produce an informed citizenry, then the newspaper should be a valuable instrument of democracy. Consequently, the newspaper can and should be adopted effectively into a multitude of curricular strategies and appeal to all segments of the learning populations: the reluctant, average and gifted learner; the newspaper is especially the perfect vehicle to utilize for the developmental student.

Reflective, discriminating reading of the newspaper should lead to greater concern for public issues while in the process it helps to develop a grasp for written self-expression.

It has been my observation in the basic writing classes that students not only lack expertise in the writing, reading and communication skills, but are often deficient in critical thinking skills especially with respect to the world of contemporary thought. Few concern themselves with acquiring information on world events or current affairs. These students do not utilize the media in culling information to attain insight into problems which should concern them. Even though world, national and local events impact on their own lives, the students' tendency to avoid the printed media especially has a limiting effect on their ability to respond to contemporary questions or to analyze or interpret paragraphs or essays, limiting their personal horizons.

I would like to expand their horizons and feel that this process is not only plausible but productive. With emphasis on content in a contemporary milieu (a view of the world), a continuous array of appropriate transparencies made from current newspapers, journals, etc. would be incorporated in the classroom program. Transparencies can serve as vehicles for transmitting material, which in turn facilitates assimilation of information by students, involving a thinking process that leads to meaningful writing. More contemporary themes than the sometimes trite and inappropriate topics found in textbooks would emerge.

This multifaceted approach deals with writing from various perspectives, providing a more personalized content-oriented strategy. The visual aspect leads to discussion and dissemination of information prior to the writing experience. Thus, as a student becomes more motivated to pursue a subject in greater depth the result is further reading and exploration. An awareness of the contemporary suddenly opens new vistas fostering a positive attitude toward writing and critical thinking.

When conveying information to students, a most adaptable and uniquely useful tool, based on experience in this course, is the overhead projector. It has proven versatility and ease of usage. Further, it enables the instructor to produce, in conjunction with the thermofax, instantaneous contemporary material which is the main thrust of this course. Use of such material reduces the cost of textbooks, a consideration in planning for student needs in a community college.

Inclusion of appropriate transparencies as part of the instructional process for the developmental student as well as students in composition courses has facilitated the teaching of skills, content, contemporary information, process, enrichment, and a wide array of inductive and deductive exercises.

Indeed, preparing the underprepared student *is* a challenge. Preparing these students proficiently provides the stepping stone, not only for the composition courses that follow, but also for recognizing the intrinsic needs of a "thinking" individual, and paves the way for follow-up courses.

Contemporary material, gleaned from newspapers is timely, newsworthy and current. While offering a special dimension to a writing program, it can provide students with a "view of the world." At the same time, students have access to an "across the curriculum process" and an opportunity for critical analysis. Moreover, they are exposed to necessary skills in a natural setting, so artificial transfer of writing skills becomes unnecessary. Consequently, as studies suggest, skills become an integral component of the writing process in a meaningful contemporary setting.

Developing skill in scanning a paper is an important tool in our fast-paced society. Underlining important facts and statistics as an aid in scanning enables a student to develop a selective method of reading in preparing for a possible subsequent writing experience. Organizational patterns are discerned. Students note that often the first paragraph of an article responds to the five W's. The second paragraph frequently focuses on details culminating with a focus on the news event. A rhetorical pattern is noted observing that most news stories are written in chronological sequence. Learning to summarize an article, not only enhances the learning, reading and writing skills, but enhances critical thinking skills.

Certainly, writing across the curriculum is facilitated with the variety of subject matter and disciplines incorporated in a newspaper. Doing this consequently facilitates the integration of concepts. "Write to Learn" and "Learn to Write" might very well be the credo in such a venture.

Application of Bloom's Taxonomy

- Knowledge - Students are asked to recall or recognize information from their readings in the newspaper.
- Comprehension - Students are asked to describe in his or her own words previously learned material gleaned from the newspaper.
- Application - Students are asked to use previously learned information from the paper to solve a problem.
- Analysis - Students are asked to identify reasons, causes and motives or to make conclusions based on available evidence or analyze a conclusion or generalization to find supporting evidence in a newspaper article.
- Synthesis - Students are asked to make predictions, solve problems or create a new situation based on previously learned information from a news item.
- Evaluation - Students are asked to judge the merit of an idea a solution, or an aesthetic work as proposed in the newspaper.

Written analysis of opinions expressed in editorials increases critical thinking while helping students to distinguish between opinion, interpretation and argument and to discern purpose while evaluating the intent of the news item. Students will develop the skill to interpret, to reason, to summarize and to draw conclusions in the process. Listening skills are another facet in the utilization of media analysis.

Fostering debate on public issues can provide challenging exercises. Identifying and synthesizing the various types of propaganda devices and word usage heightens critical thinking leading to critical writing.

An ultimate result is to develop the ability to differentiate between subjective and objective reporting. Discussion of public issues, - a focal point in newspaper writing is a necessary component in the analysis of the student paper. Thus, a highly controversial issue will elicit a discussion of procedure including approaches and propaganda devices. A comparison between what one sees and what one hears constitutes a focal point suitable for analysis of news reporting. Valid arguments, substantiated by facts, and involving reasoning will emanate.

In the process of reading the newspaper, a student is encouraged to develop the technique of differentiating between literal and stipulated definitions of words and concepts. Interpretive analysis of contemporary events results. Certainly, abstract nouns such as peace, freedom, morality, loyalty can lead to analytical and interpretive writing on news events.

In my teaching experience, students are exposed to different types of editorials including informative, interpretive, argumentative and persuasive which are subsequently analyzed in terms of language, syntax, etc.

The emotional appeal of an article is carefully considered determining whether it arouses curiosity, provokes humor, causes pity, or stirs the imagination.

Newspapers constitute an adult's continuing living textbook, helping the individual to conduct intelligent conversation on a wide range of subjects.

An analysis of the conflict between advertising such as cigarette ads and articles explaining the ills of smoking raises perplexing issues. This includes analyses of "ads" that have distinctive appeals, i.e. snobbishness, fear, desire for security.

A careful evaluation of newspapers in terms of information, conciseness, clarity, accuracy and objectivity constitute an important aspect of the study of various component parts of the paper.

Careful scrutiny of articles is at times intended to determine whether motives of public figures are apparent. Students will be involved in clarifying their own values and evaluating their position on major issues. Global learning, too, can be enhanced in the process of reading about contemporary issues involving the world population.

Various Techniques can be Employed in the Utilization of a Newspaper in a Writing Program

Specific skills evolving from the use of the paper: Reading, Writing, Speaking, Listening.

- Canons of journalism - assessment of strategies using the split page on the left indicating the objective news, on the right student reaction.
- Photography in the news - in writing, describe the event or situation as noted in a photograph.
- Syndicated columnists - follow the focus of a columnist and respond to it. Note the central issue.
- Relate writing of precis to news story - in writing, specify three major concerns as indicated by the columnist.
- Identify 5 W's - (who, what, when, where, why, how) Note this inherent component in news writing and focus on them in writing a summary.
- Panel discussion - followed by written conclusion of results - two sides of an issue.

- Analyze editorials - note what is the purpose, procedure and expectation of the author. What is the rhetorical mode?
- Sentence Variety - locate different types of sentences, ie. compound, complex, etc.
- Compel interest in illustrations - in writing, develop an appropriate essay suitable to tone of the illustration.
- Interview between reporter and public figure (imagined) - design appropriate questions.
- Different leads and approaches - inverted triangle.
- Creative Writing - news item becomes a fictional story.
- "Found" poetry - from a brief news item, develop prose representing the original text.

Listening skills

- News articles should be read and then four types of questions should be devised and incorporated in the assignment
    - recall
    - define
    - infer
    - construct
    - headline

- Transparencies of interest, current charts or graphs lead to interpretive questions and responses while imparting information in a contemporary milieu.
- Take a poll on current issues election results, for example. Compiling results in writing can lead to compelling conclusions.
- Compose news stories composed from limited facts - interpretive analysis of data.
- Vocabulary for special interest groups
    - Acronyms-
        - NATO
        - RADAR
        - CORE
- Removal of original captions in human interest pictures and replacing them with students' own captions and stories encourages student involvement and motivates creative thinking.
- Underlining important facts and statistics (five W's) an aid in scanning.
- Construct Headline - develop a news event pertinent to a contemporary event.
- Persuasive Argument - i.e. Against patriotism, For use of profanity.
- Irony or opposing arguments - provide an avenue for discussion and are a natural conduit to writing and finding patterns.
- Structural Analysis - i.e. Locate root, prefix, suffix.
- Editorial Cartoons - critique cartoons after analyzing them.

Because of its unique timeliness, a newspaper can play a special role motivating students in becoming informed citizens. Society can benefit, of course, from such a positive achievement.

For example, the Bill of Rights, which normally remains within the purview of a history classroom, becomes a viable instrument when incorporated in a contemporary setting. Even on the state level, a recently proposed amendment to Article I of the New Jersey Constitution, which attempts to rectify the lack of concern for crime victims, will appear on the ballot in this forthcoming November 5th election. Certainly, since this proposed amendment can impact today's student population, it should serve as a focal point for critical writing and thinking.

The newspaper, then, serves as an affordable contemporary, utilitarian means of disseminating current information adaptable to classroom usage.

A question remains, however, about the authenticity of the newspaper's contents. Standards have been set, for example, by the Sigma Delta Chi Society of Professional Journalists, Code of Ethics (1926, revised 1987) as follows "News pages (as opposed to the editorial page) should be free of opinion or bias and represent all sides of an issue." Further, it is noted, "There is no excuse for inaccuracies (anywhere)."

The *New York Times* (excerpt from an April 16, 1990 announcement) indicated, "Writers and editors of the *Times* take accuracy to be their first obligation to readers." We, the readers, have to approach a newspaper's contents with a certain amount of skepticism. However, the newspaper is a viable instrument in view of its wide application in a developmental English classroom.

To conclude with Thomas Jefferson "[A newspapers is] The best instrument for enlightening the mind of man and improving him as a rational, moral and social being."[2]

At the same time, as Voltaire once noted, "In the case of news, we should always wait for the sacrament of confirmation."[3]

Endnotes

[1] *Dictionary of Quotations* (Bergen Evans, ed.). New York: Delacorte Press, 1968, p. 148

[2] *Dictionary of Quotations* (Bergen Evans, ed.). New York: Delacorte Press, 1968, p . 398

[3] *The Concise Columbia Dictionary of Quotations* (Bert Andres, ed.). New York: Columbia University Press, 1989, p. 182.

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SOCIAL AND COGNITIVE ASPECTS OF LITERACY: INTEGRATING DIVERSE TEACHING APPROACHES

Nathalie Bailey

Introduction

Teachers commonly come down on one side or the other of the question of how second language literacy should be taught: socially or cognitively. A social approach emphasizes the sharing of reading and writing experiences and the empowerment of second language (SL) students through social interaction and the communal construction of knowledge. This approach adapts instruction to learners - rather than asking them to adapt to types of instruction to which they are not accustomed (Tumposky 1989). Adapting instruction to SL students means taking them where they are and giving them a successful experience. An example of this is "fluency first" writing instruction (Mayher 1983) which has been adapted for SL instruction by McGowan-Gilhooley (1990, 1991). Common reading input at the fluency stage of literacy development (there are also clarity and accuracy stages) is autobiographical or mystery writing. SL students then write in response or in like manner to their reading with the object of successfully expressing themselves in a second language without being overly concerned for the accuracy of their language.

In contrast, cognitive approaches to reading/writing instruction require learners to adapt to instruction which may mean writing summaries of chapters in a content based class or argument style essays in a composition class, for example. Both of these types of writing require students to meet certain form expectations such as the use of paraphrase in summary writing or the use of specific rhetorical organization patterns in argument essay writing. Learners in cognitively oriented courses are expected to adapt to both the form and content of what they read in order to learn how to write the way academics write. Some cognitively oriented courses may emphasize the *products* of writing such as the hierarchical organization of various genres of composition or accurate sentence structure, grammar and punctuation use. Other cognitive approaches may emphasize the *processes* of writing, i.e., the strategies and components of composing such as planning, drafting and editing. There is considerable variety among cognitive approaches just as there is among social approaches.

The extent to which the learner should adapt to instruction is currently being hotly - if covertly - debated by ESL composition theorists, such as Silva, Johns, (in Kroll, 1990) and Raimes (1991) who have all pointed out that different writing approaches disproportionately privilege the writer, the reader, or the subject matter of compositions. So called "process" writing, as represented in the articles of Zamel (1987) and Raimes (1987), has been accused of favoring the writer and neglecting the academic reader by encouraging a personal style of writing not traditionally associated with academic purposes. Johns, representing English for Academic Purposes (EAP) or English for Special Purposes (ESP), believes that college students' SL needs lie in a more cognitive direction and favors a reader-based (Flower 1979) writing approach which other theorists say amounts to writing English for somebody else's purposes. Content based instruction has also been faulted (Spack 1988) for requiring students and teachers to master the subject matter of another field such as economics in order to teach/learn ESL.

In this paper we will be making the claim that a combination of social and cognitive approaches to second language teaching in higher education is valid, optimal and possible. To this end we will attempt to differentiate social and cognitive approaches systematically but also to show the overlaps and inter-relationships among them. We are well aware that choices made at one point in the development of literacy might give way to other choices at a later time. Never the less we believe that it is necessary for teachers to take a global view of language development in order to know how to combine their knowledge of the theories and purposes behind different teaching approaches with their understanding of learners' needs in order to come up with suitable methods and curricula for their students.

Social Approaches to Literacy

Social Interaction

The first social approach to reading/writing instruction we will look at is social interaction. This approach is the broadest of the four approaches we will be discussing. As such it is the most difficult to distinguish. Social interaction is associated with each of the other approaches whenever they involve speaking, listening and audience awareness. The relationship of social interaction to the other three approaches is represented in Figure 1 as both superseding and overlapping the rest.

A social interaction approach has its roots in the belief that language is learned through use without the need for study. This theory is based on the model of a child acquiring a first language and reflects sociolinguistic research which claims that children learning a first language learn to read and write largely as an extension of their oral language use. Shirley Brice Heath in her widely acclaimed (1983) book, *Ways with words: Language, life, and work in communities and classrooms,* documents literacy differences from one community to another and shows how they relate to social interaction patterns. Educational theorists, Frank Smith (1983) and Kenneth and Yetta Goodman (1983) share Heath's conviction that literacy is learned in a social context in which learners experience the uses of literacy and become personally engaged in using these ways of interacting with others. Examples of this interaction are having books in the environment, writing notes and letters, reading aloud, telling stories, and reading or writing publicly.

Pedagogies associated with this highly communicative type of reading and writing instruction are the language experience approach, the shared book approach, and holistic language teaching. Procedures which are normally used in these approaches include students and teachers reading and writing together, and oral preparation for and reflection on reading and writing experiences.

One of the principles of first language learning that has been extrapolated from first language literacy learning for second language purposes is that of exposure or input. According to Frank Smith (1988), writing is learned by doing lots of reading and thereby joining the "literacy club" of people who are empowered to read and write. Smith (1983) also claims that children learn to write by reading like writers in so far as they collaborate with the author in constructing the meaning of the text. It is in this meaning construction aspect that social interaction theory overlaps with reading response theory which we will be examining next.

Following Smith in his conviction that writing ability results from reading exposure, Krashen (1987, 1988) articulated a pleasure reading hypothesis for second language learners, i.e., that writing can be learned from exposure to self-selected, casual reading. Though Janopoulos (1988), Deal (1988) and Flahive and Bailey (1988) have all failed to empirically confirm Krashen's claim that there is a causal relationship between pleasure reading and quality of writing, Krashen's exposure theory of reading/writing interaction has influenced countless SL teachers to emphasize reading more than writing in their classrooms. First language theorists, Goodman and Goodman (1983), arguing from a more balanced perspective, propose that it is writing which is typically neglected more than reading and needs to be practiced.

The problems with Krashen's view of the second language reading/writing relationship are: 1) it involves a one-way rather than a two way interaction between reading and writing which research (Shanahan and Lomax, 1986) has shown to be more effective and 2) it does not involve social interaction; people do not interact in sustained silent reading. Krashen's reading input theory involves exposure to and transactions with authors but not social interaction with people in one's environment. It would be reductionist to equate a social approach to second-language literacy with exposure or input alone and to discount the contribution of the output which is part of social interaction.

In contrast with his earlier position, Krashen (1990) goes beyond a casual reading input theory to an intentional reading input/writing output theory. In this (1990) paper entitled "How reading and writing make you smarter, or, how smart people read and write" Krashen claims that the most effective reading is done for the purposes of writing on topics that are self-selected and of special interest to the writer. Reading, he states, serves the purpose of an idea generator for writing, with the solution of a problem serving as the motivation for reading.

Thus, in his latest pronouncement on the relationship of reading and writing, Krashen has become cognitively if not socially interactive, which is to say that he acknowledges the relationship between reading input and writing output. He has stated (personal communication), however, that reading and writing are essentially solitary activities, a position which we shall see shortly is more typical of a cognitive than a social approach to literacy. Krashen's self-contradiction of his former input only stance on the reading/writing relationship may make the point more strongly than anything we could say in this paper about the need for teachers to include both social and cognitive aspects of literacy in their classroom teaching.

Reading-Response

Reading-response theory derives from literary criticism as exemplified in the writing of Crossman (1984), Holland (1975), Fish (1980), and Salvatori (1983). According to this theory, the meaning of what is read is constructed jointly by the author and the reader. Together they transact the meaning of a text. Much writing in response to reading which is done in the second language classroom has its roots in reading response theory. This kind of reading/writing does not merely use reading as a stimulus for writing but requires the reader to personally interpret what is read. One way in which this may be done is outlined by Bleich (1978) in *Subjective Criticism.* In his three stage heuristic readers first identify what they believe the writer is saying. Then they give their feelings and reactions to that. Finally, they identify the associations they have with what the author is saying.

In *Facts. Artifacts and Counterfacts: Theory and Method for a Reading and Writing Course,* Bartholomae and Petrosky develop a pedagogy for native speakers based on the reading response approach; Withrow, Brookes and Cummings (1990) take a similar approach in their book for non-native speakers entitled *Changes: Readings for ESL Writers.* In the process of exploring their own questions about and reactions to readings, student reader/ writers construct meanings for a text which are uniquely their own. In terms used by Tannen (1986) the reading-response approach is *involvement-focussed* rather than *information-focussed.* The empowerment of readers to make their own responses to texts very definitely takes learners from where they are and gives them a successful experience, thus satisfying our operational definition of a social approach to literacy.

The problem with social approaches to literacy development in first or second language learners is that they are frequently taken to be the sine qua non of literacy teaching and sometimes regarded as a point beyond which teachers need not go. Brookes (1990) expressed the opinion that involvement-focussed social approaches establish mutual respect between teachers and learners and that this goal is harder to achieve (and by inference more greatly to be desired) than more cognitively oriented goals.

It is our conviction that low proficiency readers and writers, as well as their high proficiency counterparts, can benefit from cognitive as well as social approaches to literacy learning. They can be involvement-focussed and information-focussed both, and in doing so, more successfully adapt to reading and writing tasks that they are unaccustomed to such as argument style essay writing. In support of this position Teich (1987) writing about the transfer of writing skills, supplies an important rationale for combined social and cognitive instruction. He proposes that the "transfer of higher-order knowledge in the domain of rhetoric and writing" is vertical rather than horizontal (transferable). He explains what this signifies to teachers of composition by admonishing them to "build fluency by requiring regular and frequent writing of whole compositions (or developed units of thought); but... not [to] expect that competence in one mode or strategy will transfer to other modes, especially in different content areas, without direct instruction in the desired mode and subject matter." Teich goes on to say that "The balance needs to be maintained between writing assignments that are teacher generated in highly structured forms and those that are student-centered' leading to reflexive, personally meaningful writing. And there is no reason why approaches should be seen as mutually exclusive." We will now turn to a discussion of cognitively oriented reading/writing approaches.

Cognitive Approaches to Literacy

Content based instruction

Content based instruction (Shih, 1986 and Brinton et al., 1989) is the description of a cognitive approach to literacy because of its focus on the *product* of learning, unlike social interaction and reader-response which are involvement focussed, CBI is decidedly information-focussed. Furthermore, it contrasts with more social approaches in the extent to which learners must adapt to instruction. In a wide range of applications from sheltered classrooms for children learning a second language to adjunct courses which help matriculated ESL college students with their non-ESL courses, to thematically based ESL reading and writing instruction, the content involved is academic knowledge and the process of learning specifies a focus off form and onto meaning. The theory behind this approach is schema reading theory which assumes that the reader mobilizes prior knowledge in order to understand new knowledge. Content based instruction further assumes that writing is preceded by reading as a stimulus or idea generator and that a reader/writer reads with a narrow focus in order to actively control and test the ideas that will later be developed in writing. Feedback on writing in a content based approach to literacy is necessarily based on the quality of the content and the reasoning involved. Writing-across-the-curriculum, the native speaker variant of this approach, affords the learner with frequent opportunities to write as does CBI. Exponents of English for Academic purposes are especially concerned with the form of college writing and therefore ask students to model their writing closely on their reading and to learn to write such writing genres as reading summaries, research papers and answer essay test questions.

Content based instruction may be employed at both beginning and advanced levels of instruction. In a beginning level, second language course the content upon which the class focuses may provide the opportunity for *knowledge re-telling* (Bereiter and Scamadalia 1987), a relatively social task. Only at a more advanced level will learners be required to do *knowledge-transformation* as in expository essay writing. It is in this later phase that CBI develops its full potential as a basis for individualized, critical reading, writing and thinking.

Formalism

The second cognitive approach we will discuss we will call formalism in keeping with the use of this term by Stephen North (1987) in his book *The Making of Knowledge in Composition*. North uses this term as a designation for the abstract model building of cognitive psychologists such as Flower and Hays (1981) who did groundbreaking research on the principal components of the writing process: planning, translating (drafting), and monitoring. Subsequently Tierney and Pearson (1983), Squire (1983) and others have described in even greater detail parallel meaning construction processes in both reading and writing. The principal feature of formalism, however, relates to the familiar pedagogical term, formal instruction. Whether the components are processes such as planning, drafting and editing or parts of the composition such as introduction, body, and conclusion, or even grammatical parts of speech such as noun, verb, adjective and adverb, the generalization holds that formalism involves the isolation of components for instruction.

Since teachers of second language literacy are increasingly turning to the formalism of reading and writing processes in order to structure their teaching, it would be tempting to identify formalism with the so called "process approach" but to do so would be to limit its generalization as a learning approach. The "process approach," it appears, is quite variable among teachers. Some teachers may interpret process writing as more involvement-focussed, personal and expressive than others. Many teachers may find it useful to encourage their students to systematically plan, revise and monitor their writing, but some may require students to follow certain processes such as multiple drafting and others may merely ask students to introspect on the processes they tend to use. Some teachers may ask students to consider their audience's needs and to achieve very clear expression of their writing focus or controlling idea. Other teachers may find a more writer-based style of composing optimal for their students. Regardless of these differences in teaching the processes of writing, however, two features remain constant in formalism/formal instruction: products and/or processes will be broken down into components for instruction and the learner will spend considerable solitary time and effort on learning by this approach.

Theoretical Approach-Based Teaching

The four approaches to reading/writing instruction which we have identified in this paper form a set of current pedagogies in the field of

ESL. This set consists of social interaction, reading response, content based instruction and formalism. None of these approaches is mutually exclusive. The one that overlaps all the others, social interaction, appears to be an indispensable element in teaching second language literacy.

Reading response is socially interactive in the sense that students transact the meaning of texts with authors, teachers and classmates. By reading rhetorically (Haas and Flower 1988), i.e., determining the point of view of the author and agreeing or disagreeing with that point of view, students are preparing in a social way to write opinion essays of their own. Content based instruction can involve social interaction in the form of debates, collaborative group work, panels, student led classes, and so on. The kinds of social interaction that have become almost standard features of formalism are 1) consideration of audience and brainstorming before writing, 2) peer review before revising, and 3) editing in peer or teacher conferences. In addition more product oriented formal instruction may also use group work to investigate points of grammar and discuss forms of rhetorical organization of reading and writing.

Another important connection among the set of reading/writing pedagogies we have identified in this paper is that they are related holistically. When these four approaches are combined, it becomes apparent that each represents a different modality of language use. Social interaction involves speaking primarily; reading response is a form of listening or attending to an author's voice and one's own; content based instruction is heavily reading oriented; and formalism is primarily writing. Using all of these learning/teaching approaches together is a way of achieving wholeness in literacy development.

If we were to stop at this point and merely suggest that teachers of second language literacy combine the four approaches we have outlined, out contribution to the ongoing conversation about methodology of teaching would be limited to basically what the proponents of task-based (Prabu 1990) curricula have proposed, namely that teachers employ many different types of tasks in their teaching. Prabu says teachers need to do this to retain a sense of plausibility about the relationship between how they teach and how students learn. Acton (1991), in a paper entitled "Beyond bandwagons, images and options," also suggested that teachers change methods and tasks frequently to insure their continued effectiveness as teachers. By contrast we are recommending that teachers combine theoretically diverse approaches to teaching in order to specifically integrate social and cognitive learning.

Frequently social approaches are sequenced before cognitive approaches in a curriculum, a course or sequence of lessons with the result that cognitive objectives are never reached. Or the opposite may be true. Teachers may approach teaching in such a cognitive manner that social aspects of learning have no place. For some reason natural acquisition and academic learning are often seen to be conflicting rather than complimentary conceptions of learning by teachers and students alike. College ESL students can have very strong opinions about how they want to learn. Teachers therefore find their own sense of plausibility jarringly impacted by student demands for a more social or a more cognitive kind of classroom instruction. The solution would appear to be to integrate approaches.

While many teachers would agree that a combination of social and cognitive approaches would be the best way to teach their students literacy, they may not know how to do that. Actually we have found that just by integrating reading and writing teachers quite naturally combine social and cognitive learning approaches. But, in order to be systematic in this regard, teachers can sequence reading response before more content based and formal reading and writing and cycle social interaction into all of the above. This combination of sequencing and recycling can also be done on a course basis rather than a lesson basis, which is to say that a series of courses can be designed to take students from more social to more cognitive aspects of literacy. This is what is done at City College, CUNY, where a "fluency first", (McGowan-Gilhooley 1990, 1991) clarity second and accuracy third curriculum is followed. On the fluency level texts which are involving and accessible such as autobiographies and mysteries are read and written. At the clarity stage more informational reading and writing is done with research papers as the end goal. At the accuracy stage students work on argument essay writing and editing.

Another way to sequence teaching rather than by the linear model followed at City College would be to overlap diverse teaching approaches at any given time. (A way to envision this would be as a Venn diagram of overlapping circles. See Figure 2.) For example, appropriate reading material could be introduced with social interaction and reading response procedures and followed up by expository and opinion essay writing. For instance a complimentary sequences of activities might be a reading response paper, a group discussion, an (oral or written) content summary, a debate and/or an opinion essay. In order to tailor these activities to students' individual needs, teachers could give students choices of articles and/or books to read and a list of oral and written activities based on their reading to select from.

By using both social and cognitive approaches to literacy development at all levels of language development, teachers may be able to meet more of the expectations and needs of their students than if they limited themselves to a purely social or cognitive approach alone at any given point. College students learning second languages may have widely divergent backgrounds and uses for language. Teachers who take a social approach to reading and writing instruction which consists solely of reading response and writing for self-expression may find that some students prefer to do more informational and rhetorical reading and writing. In many cultures, including Hispanic ones, a formal manner of presenting oneself publicly is more common among young people than it is in the United States. Teachers need to take into consideration, therefore, the language experience and cultural expectations of second language learners when creating curricula which have to be plausible (Prabu 1990) not only to themselves but to their students. We propose that teachers purposely overlap different theoretical approaches to teaching reading/writing in order to move from social aspects of (literacy) learning to cognitive ones and back again in a way that will be most alive and dynamic for learners and teachers alike.

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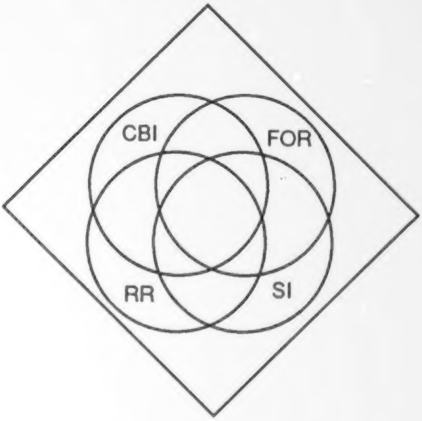
Figure 1

<table>
<tr><td colspan="3">Social Interaction (SI)</td></tr>
<tr><td colspan="3"></td></tr>
<tr><td>Reading Response (RR)</td><td>Content-Based Instruction (CBI)</td><td>Formalism (For)</td></tr>
</table>

Figure 2


CBI
FOR
RR
SI

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EDUCATING CRITICAL THINKERS IN THE WORKPLACE

Gloria Pierce

If business enterprises are to remain viable in the 1990s and beyond, their learning agents (employees at all organizational levels) must learn to question current operating practices in order to revitalize and improve organizational functioning. Without such renewal, organizations are in danger of decline and death. In the face of such high stakes, critical thinking may be our best chance to increase the odds for organizational survival in the 21st century. This paper is based on the assumption that it is in the authentic self-interest of organizations to concentrate employee development efforts on developing critical thinking skills and attitudes at all organizational levels.

Two key components in critical thinking are assumption analysis and imaginative speculation (Brookfield, 1987). In education for critical thinking, learners are helped to identify and question the validity of their assumptions and to imagine and become receptive to alternative or expanded perspectives. Critical thinking in the workp[illegible]uires that employees (l) become aware of the unintended outco[illegible]s and consequences of their actions; (2) identify and question th[illegible] of the assumptions and beliefs upon which their decision-making criteria and operating practices are based and (3) expand their awareness to include alternative perspectives and possible courses of action.

Such a process can be difficult, frustrating and sometimes painful. Although the payoff may be acknowledged intellectually, such learning requires an emotional investment as well as an intellectual one. Hence the affective component of such education and training must be acknowledged and resistance overcome. To do this a supportive but challenging learning environment must be created. The turbulent, uncertain marketplace can cause high levels of anxiety and stress. The deliberate creation of a safe atmosphere where concerns can be discussed openly and alternatives explored freely is a necessary condition for thinking critically about business.

The facilitator's role should be one of an "empathic provocateur" (Mezirow, 1990) who encourages dialogue, critical discourse, and the voicing of multiple perspectives through the modeling of communication skills such as active listening and feedback. A non-judgmental attitude on the part of the facilitator helps to create a climate that allows for honest, candid articulation of the beliefs that drive decisions and actions.

Research indicates that off-site residential training programs can provide the quiet space necessary to engage in transformative learning processes (Pierce, 1986). Sufficient time, a safe space and skilled, compassionate facilitators are essential. Such a "pause for reflection" slows the pace of life and breaks daily routines and habitual thought patterns, allowing workers/learners to reflect and examine current practices and beliefs to explore more effective alternatives.

Several methods are especially effective in facilitating critical thinking in adult learners when used in a non-threatening but challenging climate. These are critical incidents, relationship and problem analyzers, journals, role reversals, interpretive scenarios, films, and skits.

Critical Incidents

The use of critical incidents (Flanagan, 1954) is an effective yet non-threatening method of stimulating critical reflection. Participants are asked to reflect on particularly successful experience in their professional life, one where they accomplished an important goal, solved a difficult problem or contributed to a significant project. They first work in small sub-groups of four or five to identify and discuss common elements and then submit a brief report to the other sub-groups. Or they may each be asked to contribute one outstanding feature of their incident as the facilitator records it on a flipchart. In this way, "a picture of excellence" emerges which is used to identify criteria for effective practice.

When this positive critical incident is completed, attention is turned to a negative case incident and the elements are compared. By reflecting on their own best and worst incidents, participants generate and clarify criteria for excellence in their professional practice. When there is disagreement, it can serve as a springboard for teasing out the presuppositions of the opposing viewpoints and questioning their accuracy. Through this type of critical discourse, both views are held up to scrutiny by the group, often resulting in an entirely new insight or concept. This type of dialectical process usually produces a high level of energy in the group and stimulates critical reflection on significant events in learners' professional lives.

Schein (1985) suggests that the implicit norms and values of organizational cultures can be made explicit through examining emotionally laden events in the business' history. These could be crisis points at which the very survival of the organization was at stake or other painful periods, such as a reorganization, merger or relocation. Whatever variation of the critical incident method is used, whatever specific job function, organization setting or issue is analyzed, the exercise should result in bringing hidden assumptions to awareness.

Relationship and Problem Analyzer

As this happens, participants begin to look at problems they are facing in a different way. In a typical workshop, employees begin to take more responsibility as they realize how their own mindsets powerfully impact their relationships with others in the workplace. At certain intervals throughout the workshop, therefore, participants are given opportunities to analyze key relationships or problems they are involved in at work. They are asked to take 15-30 minutes to reflect on a specific problem or difficult relationship they would like to improve. They then write answers to questions such as, "what am I now doing that seems to contribute to the areas of difficulty?"; "what areas of strength does the situation or relationship have?"; "what do I expect from this situation/person?"; "how do others see the situation?"; "what do others expect from me?" Such questions help to develop empathy for the other person as well as the self-insight essential for effective job performance.

In the later stages of the workshop, participants are asked to imagine the relationship as they would like it to be in six months and to plan specific actions they can take to bring it about. In summary, the relationship problem analyzer is an effective method to help employees identify and correct distortions in their perspectives, reformulate problems, and imagine and create new possibilities in their jobs.

Journals

Another method that helps extend perspectives on a situation is journal writing. Participants keep learning journals in which they record their thoughts, judgments and feelings about daily events and share these with each other. The process helps writers become familiar and comfortable with the affective element of their experience and to appreciate its impact on their thinking and behavior.

After reading and listening to passages from their journals, participants problematize from recurring themes: they define a problematic issue in one person's journal. Then the group generates many different ways of understanding this problem by repeatedly asking, "Could it be that...?" and recording as many responses as possible on flipcharts.

After generating a wide spectrum of diverse perspectives, participants become dissatisfied with their original definition of the problem. In other words, this combination of journaling and brainstorming facilitates problem reformulation and makes it more likely that the right problem will be solved. The extra benefit of this method is that it is easily used in the workplace itself and need not be restricted to a critical thinking workshop.

Role Reversal Through Reverse Roleplay and Critical Debate

In reverse roleplay, participants encounter themselves by reversing roles with someone they have an important relationship with - a subordinate, their manager, a peer or client. As the roleplay drama unfolds, participants are able to feel and see more clearly the effects of their behavior on others.

Facilitators process the roleplay by asking the group to analyze how each actor's perceptions, feelings, thoughts and behavior interacted to produce the events that took place. In so doing, participants are often surprised and sometimes dismayed to discover the assumptions driving their actions. It was disconcerting for one manager to realize that he assigned projects to his employees as if they were "interchangeable parts" because he assumed that people operate like machines. Once this assumption was surfaced and named, the manager could begin to challenge it by reflecting on his own motivating work assignments.

The critical debate (Daloz, 1986) is another format in which rôle reversal is used to develop an understanding of other points of view. Panels of participants argue for a position with which they disagree. Taking the opposite side of an issue forces the consideration of alternative perspectives and reasoning within those perspectives.

Interpretive Scenarios

Participants are given sketchy descriptions of ambiguous events or situations they might encounter in the workplace and then are asked to write a brief interpretation of what they have read (Morgan, 1989). Next, they share their interpretations with three or four other participants and discuss on what grounds they made these interpretations. They are encouraged to broaden their inquiry to the underlying basic assumptions they made about the nature of work or authority relationships, concepts of themselves as employees, how to succeed (or fail) in the organization or other pertinent issues.

A variation on this technique is the interpretive cartoon or photograph (DeBono, 1970) which uses an ambiguous visual situation in a similar way. Participants are first asked to fill in the empty balloons over the cartoon characters' heads. The words they put into their characters' mouths reveal their perceptions and interpretations of the situation and provide clues to their implicit assumptions and beliefs. Participants should be encouraged to explore how semi-conscious beliefs and presuppositions affect their interpretations, how the sharing of contrasting perspectives may have changed their original interpretation, and the justifications and consequences of their assumptions and beliefs.

Films and Skits

Films or videotapes can be used as mirrors in which managers can see reflections of their own behaviors and thoughts. Humorous film clips are especially effective because they tend to be less threatening. Participants laugh at a comic character who makes poor decisions based on faulty reasoning and assumptions, and realize that they have acted similarly. Tapes and films are debriefed by asking what was taken for granted and other questions designed to facilitate critical inquiry.

A more creative form of debriefing is to extend the dramatic situation in time. Participants are asked to assume the role of a character in the drama and to continue the situation further. Not only do participants develop empathy for the characters they portray, they also are able to see the likely consequences and results of their actions. They might also be asked to imagine and create a new scenario based on a change in perspective of one or more characters.

A more elaborate way to create alternative futures is to invite participants to perform skits. For instance, a popular exercise used in some management programs asks a "cast" of five or six managers to deliver a skit based on their conception of the manager's role in the business enterprise. Often, the "actors" contrast satiric, negative portrayals based on dysfunctional norms and inadequate perspectives with their vision of a changed reality. This is a type of futures invention whereby managers experiment with workplace transformation and literally "rehearse" actions based on expanded perspectives.

Such activities can be powerful experiences for participants, as their comments indicate: "My aha! moments came in the skits and films. I saw management doing negative things and I don't want to get into that. They made me more determined than ever not to do those things." Another stated, "I watched the movies and sank lower in my chair because I saw myself doing those things. Lots of things I became aware of like that—seeing myself in the scenes." (Pierce, 1986, p. 260).

Conclusions

Educators have a responsibility to develop critical thinkers in and for the workplace. This is done most successfully through active engagement in meaningful, esteem-enhancing employee development programs. The development of critical thinking skills increases competence and a sense of mastery, achievement, and confidence that benefits employees and their organizations.

A business-as-usual approach is inadequate for the global marketplace in which today's enterprises must function. The days of mindless factory work have disappeared as workplaces have become more complex, demanding higher level thinking skills from employees at all levels of the organizational hierarchy. We must begin to function as critical thinkers within our workplaces if we hope to make the transformative changes necessary for survival and health in the 21st century.

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HUMANISTIC CALCULUS: A PEDAGOGY FOR THE REPRESSED

Bill Rosenthal

Humanistic Calculus is an ongoing, exhaustive project intended to enable mathematics-injured college students to reclaim the parts of their selves that have been expropriated by conventional mathematics pedagogy. This initiative has three interconnected manifestations: 1) a course entitled Humanistic Calculus, radical both in its content and process, that has been offered at Ursinus College since the spring of 1989 and is now a permanent part of the Ursinus curriculum; 2) a wholesale reconceptualization of calculus pedagogy; and 3) an ethnographic teacher-research project yielding a continuous stream of data and insights on cognitive, social, and cultural aspects of learning and teaching. The following paragraphs, constructed by hurriedly pasting together pieces of previous paper proposals, form the barest possible bare-bones overview of the project. Please excuse me if the voice is shaky and even inconsistent at times.

"Humanistic Calculus" is intended for students majoring in the humanities and social sciences who must fulfill a mathematics graduation requirement. My manifesto for its creation comprises two principles: 1) a meaningful appreciation of the concepts of the calculus does not lie beyond the abilities of these students, despite the distaste and distrust that so many of them evince toward mathematics and its teachers; and 2) a pedagogical approach accounting for the entire spectrum of students' cognitive and emotional experience can dissipate enough mathematical self-hatred to enable critical learning and personal growth. I intend for Humanistic Calculus to be liberal education in the pristine sense: education meant to *liberate*.

As the course has evolved, I have identified as its nucleus four broad and interlaced themes. The first of these is the need to address and redress the pedagogical divorce of mathematics from other areas and sensibilities of human experience; I attempt to do so by including the calculus within an interdisciplinary rationality that allows for multiple perspectives and locates the discipline (and *all* knowledge) as culturally and subjectively constructed and rooted in human experience. Secondly, Humanistic Calculus is firmly founded on *language*, which manifests itself in a variety of forms and settings. Among these are the following: the belief that people learn when people write and read as people speak, actualized (among other ways) in a conversational-tone textbook (*The Satanic Calculus*) crafted expressly for the course and written in the vernacular; the self-doubting and self-abnegating ways in which students are conditioned to speak; the consequences of a mathematics curriculum "communicated" in a pidgin symbolic dialect whose semantics are understood by the teacher but withheld from students; and the authoritarian and humiliating tone of much academic discourse. Thirdly, I attempt to enable students to resurrect and exercise *their* long-silenced subjectivities. *Their* ideas, *their* thoughts, *their* feelings, *their* histories, and what *they* do (and are) are situated as valid and validated text, as part of the "material" that we "cover." Fourthly, the social relations of the classroom are purposefully structured and foregrounded. Students are encouraged (and sometimes required) not only to collaborate with one another, with two undergraduate peer tutors, and with me, but also to consider and discuss the links between interpersonal relations and schooling. Among the issues that inevitably arise is the question of power and authority in the student-teacher relationship, and, by locating myself as a benevolent authority who promotes *insight* and arouses *outrage*, I invite each student to use our relationship as a medium for critically examining her own sense of power (and lack thereof) within the context of her own education.

As to its content, "Humanistic Calculus" returns a discipline that has devolved into a abstracted system of symbol manipulation to its historical and conceptual roots of *measurement and rates*. The realization that, genetically and essentially, calculus is "about" creating methods for answering the questions "How much?" and "How fast?" drove my writing of *The Satanic Calculus*—and also a wholesale reconstruction of standard syllabi around student-posed problems and students' own informal and often ingenious techniques for solving them. This, more than any other feature of my work, is what characterizes the "trickle-up" effect of the "Humanistic Calculus" course upon the standard calculus courses under my watch. The four "broad and interlaced themes" of the previous paragraph are also sounded—loudly—in these conventional courses. A deficit of time, energy, and caffeine precludes me from detailing how this all gets played out in the classroom, my office, and our heads and hearts, but I will mention a few particulars. (Here comes another list.) First, the lingua franca of any calculus class I lead is English and not what I (and students) call "mumbo-jumbo." Second, the re-integration of "school learning" with lived experiences allows and even mandates the use of high-tech devices such as the ruler; this also legitimizes and celebrates the empirical, inductive, and intuitive intelligences inherent in every human. Third, the authoritarian student-teacher relations that militate against learning, criticism, and personal growth are named, problematized, and discussed in (what has become) "humanistic" calculus as well as in "Humanistic Calculus." Fourth, an unexpected by-product of repositioning material so as to arise from student experience is a cornucopia/hornet's nest of philosophical-epistemological issues ("What *is* an instant? Can anything *really* be measured exactly?").

Finally, a cautionary note: to give credence to the words of the creators of the billions and billions of calculus-reform projects currently being funded by *your* tax dollars is to believe that each initiative is a panacea for everything from poor algebra skills to student passivity to the "problem" of national competitiveness. I've yet to hear even one discouraging word— about, say, students' resistance and anger, colleagues' resistance and anger; the physical and emotional toll of re-envisioning and re-vising content and processes that were considered untouchable until half a decade ago; and the mere possibility that our ballyhooed new teaching styles just might be a square peg for the round hole of at least a few students' learning styles. In a paper written when I was young and naive, I claimed that my pedagogy hews to the physician's credo: "First, do no harm." Three years ago, before I began to learn to listen to students, I could not hear the damage that my wonderful work was perpetrating upon them. Now I know.

My project generated spontaneously out of "pure" classroom practice, its gestation and birth attended neither by theory nor existing research. Yet once the course commenced, and I began to reflect upon, react to, and act upon the sentiments and wisdom in students' self-reflective journals and also the hundreds of pages of notes I collected from class sessions and private conversations with students, I immediately became a de facto participant observer in/of this pedagogical experiment. Without forethought, without intent, I had stumbled into teacher research. I was soon to realize that this is not research for some future article, symposium, or tenure evaluation; instead, this is research that I must do *today* if *today* I am to teach reactively, reflectively, reflexively, responsively, and *responsibly*. Now informed and guided by a wealth of theoretical readings (many of these drawn from feminist and emancipatory pedagogies), my work in Humanistic Calculus became an ethnographic research project that continues to generate file cabinets-full of qualitative data on such issues as the influence of both classroom and college cultures on learning and teaching, the idiosyncrasy of cognitive styles, and the ways in which student-teacher interpersonal relations structure and largely determine a student's performance, learning, and quality of life in a course.

My presentation consists of an interactive elaboration of these themes, presented in my words, the voices of students, and through the questions and insights of audience members. I hope to offer new possibilities for braiding theory, research, and practice in the creation of innovative pedagogies grounded in student subjectivities, mediated by natural language, and inseparable from the student-teacher relationship. And, since I could do no more than offer you a few brush-strokes of a vast and still-open canvas, I very much hope to speak, work with, teach, and learn from you in the future.

Bill Rosenthal is an Associate Professor of Mathematics and Computer Science and former Co-coordinator of Women's Studies at Ursinus College.

Moral Education/Ethics and Critical Thinking: A Seminar for High School Seniors

Gene Simakowicz

Background

Should high school seniors be required to perform community service in order to qualify for a high school diploma? Should condoms be made available for free in the nurse's office at school? How much responsibility should a corporation bear for the possible damage it does to the environment especially if the corporation is a depressed area's main employer?

Every Tuesday afternoon after regular school hours fifteen high school seniors along with a faculty facilitator gather in seminar fashion to discuss moral and ethical issues in contemporary American society.

What is multi-culturalism? Is welfare reform important? What are the moral implications of non-violent and violent civil disobedience? How is a human being responsible for his or her own actions?

The concerns above are critical, and students who plan to attend our colleges and universities need a forum to address these issues before their commencement exercises in June.

The class entitled American Ethics Seminar was begun two years ago after a group of students who were at that time juniors attended a workshop on teen issues at Columbia University sponsored by WNET. The workshop involved choices of major concern to teenagers: peer pressure, premarital sex, school pressures, etc. On the van ride back to school, the students and advisor discussed the program, and also talked about the lack of a real outlet in public schools where teenagers could discuss moral and ethical choices in a class dedicated to those important topics. There were opportunities in English and social studies but a set curriculum set limits due to time and materials that needed to be covered.

After subsequent meetings with the students, the school administration was approached and accepted the concept fully. WNET was offering mini-grants at the time for innovative programs to help in moral and ethical education. The proposal was accepted by the broadcaster, and grant money was used to purchase books and materials for the class.

A criteria for the selection of participants was established. The class would be offered to seniors only, and the students would have to apply for admission. They would also need recommendations from their English and social studies teachers. Because it would be a seminar, class size was a factor: the class would have to be limited to between ten and fifteen students.

Since the program was new, a careful watch would have to be put on the development of the class. Monitoring would become very important. Four major areas would be used to measure progress.

First, students would be required to read, examine, and understand passages from the text, *Ethics in America* (Newton, ed.). Students would be exposed to philosophers from the ancient Greeks up to and including leaders in the Utilitarianism movement. The readings would be used as an impetus for discussion.

Second, students would have to be able to discuss the readings clearly, and more importantly, use their critical thinking skills to relate the texts to personal and contemporary issues. An example to textual critical thinking will be discussed later in this article.

Third, students in a seminar group such as ours must be comfortable and willing to participate. All discussions would be give-and-take with the teacher acting as a facilitator and as one who would keep the group on focus. Role plays would be used to heighten discussions concerning ethics and choices. Active listening and rules of group communication based on Native American council would be our basic framework.

Goals

A clarification of the goals and expected outcomes would probably be helpful here. What would be the goals and outcomes? What are we trying to achieve in an urban high school in northern New Jersey? Why should a public school district invest in a seminar like this one?

There are enough distractions in our technocratic society where our students do not have the opportunity to think critically and metacognitively. Television has caused many of our students to become passive receptors. They need to learn creatively and examine. The American Ethics Seminar was designed to help students understand their own value structure. When a discussion arises about the American criminal justice system and a student voices opposition about capital punishment, he or she must be able to tell why and from what foundation the belief is taken from.

Another goal of this seminar is to help students have an environment to think about their own thinking. They sometimes believe in some ideal or ethic and don't know why. The facilitator's role in this area is to set the atmosphere, present the problem, and help the students explore alternate solutions to these problems. The participants must use different problem solving skills and think through to solutions and be able to defend their choices.

Since the students are on the verge of entering the real world, hopefully, this class will give them some skills in dealing with moral and ethical choices in their careers.

There should be some kind of reading list for the students to become familiar with (see attached syllabus). High school students don't normally read Plato and Aristotle; yet these are two key players in the formation of the Western ethical code. Readings from the Bible and other sources add insight into our discussions.

The first semester's reading list is based on the ancients. During the second semester, the seminar examines some passages from Locke, Jefferson, Thoreau, Martin Luther King, Jr., and others.

Finally, an important goal of the program is to help students improve their communication skills: writing, speaking and listening.

Seniors at Work

One of the highlights of facilitating a group such as this is watching the participating students work. A new component of the class is what we dub "student direction." Individual students select a topic of current national impact, a problem they find of particular interest. Each student then is assigned a class meeting and the role of facilitator for that day. The student meets with the teacher a few days beforehand for assistance and direction. Each student-facilitator is responsible for leading a forty minute workshop.

The issue of abortion was one of the topics chosen by three students. Two of the students were pro-life; one was pro-choice. The class agreed to hold discussions on three consecutive Tuesdays - the pro-choice advocate would be sandwiched between the other two. The teacher would act as referee while student facilitators ran the class. After heated arguments for two weeks, the final student facilitator on the issue of abortion divided the class into two camps: pro-choice and pro-life. She then asked each group to reverse roles, that is, pro-choice became pro-life and vice versa. She proceeded to give three situations where the question of abortion was brought up. The first woman was raped, the second woman was a college student, and the third was a twelve year old grammar school student who was seduced by an older man. The class was to discuss each issue from their opposite perspective. Needless to say, the class period went far beyond the normal forty minutes!

Evaluation

Each student had to be given a grade even though the class met only once a week. Attendance and participation are most important. Their individual sessions are also important. Once in a while, we assign a position paper, usually short enough to finish in a class period. The students also evaluate the course at the end of the year at a closing breakfast meeting in June. It is a nice closure and a nice send-off.

Comment

Teaching or rather directing a class like this also gives the faculty participant a great sense of individual achievement. Standard classroom procedures are thrown away. Students are given adult responsibilities and mostly rise to the task. A teacher becomes a participant and not just a pronouncer of facts and statistics. A teacher becomes a guide who points the direction. The students become their own teachers.

Appendix

Passaic High School American Ethics Seminar

M-61 E. Simakowicz
Tuesdays 2:40 - 3:20

Syllabus of First Semester

Class	Date	Topics and Readings
1	9/24/91	Introduction; The Bomb Shelter.
2	10/1/91	Thucydides, from the *Pelopennesian War.*
3	10/8/91	Plato, from *The Apology.*
4	10/15/91	Plato, from *The Crito.*
5	10/22/91	Plato, from *The Republic;* Montclair Workshop
6	10/29/91	Aristotle, from the *Nicomachean Ethics;* Montclair Workshop
7	10/31/91	INSTITUTE FOR CRITICAL THINKING CONFERENCE
8	11/5/91	Aristotle, from *Politics,* Position Paper Assigned
9	11/12/91	Position paper due; Role Play and Discussion

Biblical Tradition and Law

10	11/19/91	from *Genesis*
11	11/26/91	from *Exodus*
12	12/3/91	from *Leviticus*
13	12/10/91	from *Deuteronomy* and *The Prophets*
14	12/17/91	from *Amos* and *Micah*
15	1/7/92	from *Matthew*
16	1/14/92	Position paper; Role Play; Open Discussion

Please note: Materials and readings for class during the second semester will be discussed immediately before the mid-year exams.

Gene Simakowicz teaches English, Peer Leadership , and American Ethics at Passaic High School in Passaic, NJ.

THE NEXUS BETWEEN CREATIVITY AND CRITICAL THINKING: APPLICATIONS TO RELIGOUS STUDIES

R. J. Penaskovic

Part I of my essay takes a look at the work of Sharon Bailin on creativity. Dr. Bailin takes issue with those researchers who hold that created works are discontinuous with the past and involve a radical break with the tradition. On the contrary, even in the case of new and revolutionary innovations, careful analysis shows, says Bailin, that connections with the past are always in evidence. In fact, this *must* be the case because such innovations can only be understood in the light of such traditions.

I agree with Dr. Bailin's thesis but come to essentially the same results taking a different path. I argue that the term, creativity, (much like intelligence), has various meanings which I explore briefly. Then, I look at Gardner's work on multiple intelligences, integrating them into my own perspective.

In Part II, I try to show the connection between creativity and critical thinking by focusing in on a practical problem, namely, how to apply critical thinking skills to the academic study of religion. This is, I submit, the central problem facing professors who are trying to go beyond the "facts" level of learning, (knowledge that) as opposed to the skills level (knowledge of how to). In teaching religious studies while simultaneously incorporating critical thinking skills one must clear a new path through the forest. One has few models to follow, hence one must be creative (understood as transcending the boundaries of conventional education) in helping students become active rather than passive learners. The rest of my paper deals with some concrete strategies for making such a transition possible.

I. Some Thoughts on Creativity

Sharon Bailin argues that the dichotomy between creativity and quality is a false one, since the notions of quality and creativity are intimately related. Bailin also questions the idea of a distinctive, creative process which differs from ordinary thought processes. Far from being a highly mysterious, unique or irrational process, creativity involves the excellent use of our ordinary processes of thinking insofar as they issue in new outstanding products.[1]

Dr. Bailin would agree with Pasteur who once quipped that chance favors the prepared mind. It is the person who has the skills, is conversant with the rules of performance in the arts and is knowledgeable about the tradition in the various disciplines who will, nine times out of ten, produce a new and original product, provided that "something more" is present.

That "something more" may be called imagination which has to do with going beyond the given, generating new possibilities and coming up with new ideas. Thus creativity involves both rule-following and rule-breaking. One must use one's imagination in order to decide when to follow a rule and when to break a rule. For the most part, then, creativity uses rational processes of thought (judgment, skill and knowledge) in coming up with quality products, says Bailin.[2]

How sound are the views of Dr. Bailin? I would agree with her overall thesis, viz., that the contemporary view which sees creativity in terms of arbitrary novelty, unfettered imagination and irrational processes is mistaken. I would observe that Dr. Bailin sometimes uses a straw man argument to make her case. For example, Bailin says that her findings belie the notion of a creative process which is independent of subject matter.[3] Moreover, in my view one may distinguish five senses to the term, creativity. First, creativity may refer to the individual's potential for achievement. Social scientists tell us that a creative person tends to be a nonconformist with the ability and ego-strength to pursue his or her own ideas.[4]

Second, creativity may be considered in terms of a single act. The psychologist, Jerome Bruner, calls creativity an act that produces "effective surprise." The term, surprise, refers to the unexpected that strikes one with wonder and astonishment.[5] For example, the person who came up with the idea of charging only one toll (rather than two) across the Verrazano Bridge accomplished one creative act that is a blessing to millions of motorists. Effective surprises have the quality of obviousness attached to them. Why had not this idea been thought of years ago when toll roads were first set up?

Third, creativity may be thought of as a process. The literature speaks of four main parts to the creative process: (1) a preparation period which is a time of intense preoccupation with a problem; (2) the incubation period, a time in which the unconscious plays with an idea; (3) the illumination period in which the new idea emerges almost by itself and (4) the verification period, a time to test and revise one's hypotheses and to communicate to others one's results. Some researchers, such as Vaune Ainsworth-Land, argue that there is no one creative process.[6] She instead proposes an integrating framework for understanding creativity as a process. I mention this only to move on to the next point.

Fourth, creativity may be thought of as a product. According to Gilchrist, all definitions of creativity have one essential ingredient, viz., the capacity to make new and valuable products. Some researchers feel that creativity *per se* cannot be described but only recognized by what it produces. Creativity understood as a product has to do with bringing something new into being.

Fifth, the term, creativity, may be applied to the person as such. Creative persons are thought to exhibit many common personality traits such as independence, self-confidence, curiosity, intuition, an above-average sense of humor, adventurousness and an attraction for complexity.

Abraham Maslow maintains that the concept of creativeness and that of the self-actualizing fully developed, human person are identical. If this is the case, perhaps that is why it's so hard to define creativity. Creativity has to do with the human person whose nature is mysterious and paradoxical. Does not one have the greatest scope for creative thinking in regard to one's own life? As Mary Henle puts it, our own life is a subject "in which each of us is steeped, one in which we have access to information available to no one else.[7] It seems to me we act creatively all the time thinking up ways to transcend the barriers that keep us from attaining our life-goals.

The conclusion I would draw from the above inquiry is this: creativity, much like intelligence, is not a single thing. One can be creative in writing but uncreative in another area, such as math. In his book, *Frames of Mind*, Howard Gardner speaks of seven kinds of intelligences, (1) linguistic and (2) logical-mathematical which can be assessed using standardized tests; (3) musical; (4) bodily kinesthetic (for example, the ability of the dancer, athlete and surgeon); (5) spatial intelligence found in the sculptor, topologist and surveyor; (6) interpersonal intelligence which pertains to knowledge of others, how they work and how to work with them; and (7) intrapersonal intelligence, which is the skill (correlative to the previous one) but turned inward in terms of self-knowledge and a developed sense of self.[8]

It seems to me that one may be creative in terms of these seven areas of intelligence. One question I would have is this: How do we help those who are creative in one area, for example, music, be creative in another area, say the the interpersonal sphere? Just as we need to broaden the range of what we look at in investigating intelligence, so too do we need to do the same thing, *mutatis mutandis*, in looking at creativity. This implies that those charged with assessment should be more concerned with products such as writing essays, telling stories, devising mathematical proofs, making paintings and conducting scientific experiments.[9] If we do this, standardized tests may prove to be redundant. If testing fades away because it only looks at two kinds of intelligence (linguistic and logical-mathematical) then perhaps children can tell us what they are good at and like to do in a more natural kind of way.[10]

I have been teaching on the college level for almost twenty years now. I have often toyed with the question of why those students who seemed to just about pass my course and/or graduate from college by the skin of their teeth often did so well in life as compared with the honor students. It may be because those who just about graduated had other kinds of intelligence/creativity going for them which standardized tests overlooked.

Part II. Implications for Teaching and Teachers

I believe that one must be creative in infusing critical thinking into the humanities, in general, and to the academic study of religion, in particular. For one thing, there are few models around for infusing critical thinking skills into the academic study of religion. Hence I feel like a pioneer forced to take out my axe and blaze my own trail. I begin by reflecting on two axioms which undergird my own philosophy of teaching.

Axiom 1. "When it comes to learning, the perspective of the student counts the most." In college I had a mathematics professor who was only interested in teaching the top six math students in a class of thirty. The rest of us who had difficulty with math were written off as unteachable. This teacher did not like dumb questions from the twenty-four or so who were not gifted in terms of mathematics. For this reason I have a disdain for math to this day.

Those of us who have been teaching for many years tend to forget what it is like to sit on the other side of the desk. We are so far removed in time from our beginning years in college that we take for granted the fact that students know how to use the library and do research in our own field. I try to take nothing for granted and have a class session devoted to using the library in terms of the particular course I am teaching at the time. Don't forget libraries have changed enormously in recent years, thanks to the computer. The library at Auburn University where I have access has about 1.6 million volumes and it is quite formidable for a freshman walking in for the first time wondering how to find books and articles on, say, Zoroastrianism.

One cannot presume that even college students know what an essay is and how to write one. I find myself explaining to students that an essay is a short literary composition on a particular theme and generally analytic, speculative or interpretive. Students need to be told how to organize their thoughts, construct an argument and how one opinion is not as good as another. It all depends on the arguments one can offer to support one's view.

Axiom 2. "Make yourself superfluous as a teacher so that students can handle the course content on their own."[11] Lately, I have been struggling in class with this question: How can I help students approach the study of the world religions with the same critical spirit that I have? One of the things I have done is to ask critical questions of the textbook such as: How does the author know what she claims to know? How was the author able to write a particular chapter in a certain way? Can an author really be knowledgeable about *all* of the world religions? What sources does the author use? How are arguments made? What questions does the author fail to raise?

In order to get students to handle the course on their own, I believe in pumping up their tires so to speak by complimenting them. It seems to me that the ability to exert effective control over one's learning demands a self-concept of potency and self-efficacy.[12] I try to encourage students in various ways by building up their self-esteem. In my classes, for example, I have the "smile and pass" rule. This means that if I ask a student by name a particular question, then the student has the option of either answering the question or smiling, in which case I go on to someone else. The "smile and pass" rule allows me to bring back to reality a student who is day-dreaming. It also gives students a way out when they do not know the answer to a particular question without damaging their egos.

To turn students into independent learners means to free them from environmental, institutional or personal forces that prevent them from getting a handle on their lives, their world and society. Some educators speak of this as "emancipatory learning."[13] Rather than focusing only on what students know about a subject, ask what students can do with their knowledge. The teacher must ask this question: What kinds of skills must my students possess in order to become less dependent on me? I ask two questions of students to help them think beyond the course content. One, what are you learning in this course apart from subject matter?, and two, of what use is this course to you? We will have class discussions based on these questions or they will surface as questions in essay-type exams or quizzes.

In order to make students active learners, small classes (35 students maximum) are necessary because they allow personal interaction in the educational environment. They also allow a two-way dialogue between teacher and student. Such dialogues are an important part in active learning and in the acquisition of critical-thinking skills.[14] I meet with each student individually for ten to twenty minutes. This helps establish myself as someone highly approachable. I have accomplished the first goal of the course, if students are convinced early on that a partnership for learning has been accomplished.

Lecture interactively. Stop and ask questions. Engage students in the process of thinking using an argument rather than just giving them the facts.

Last week I had a guest speaker from Canterbury, England, speak about the Anglican tradition. In the next class I asked the students to evaluate the speaker's talk including his pedagogical approach. My purpose in asking students to evaluate the speaker was threefold:

1) I wanted their input;
2) I used the speaker's talk as a vehicle for teaching students how to evaluate a talk; and
3) I used the talk as a springboard for teaching students how to ask good questions.

I pointed out how one student was able to ask a very profound question by capitalizing on a question that arose naturally from a question I had asked. I also found out that the talk went over the heads of most students. His vocabulary was too technical in addition to the fact that the speaker presumed too much knowledge of the Anglican tradition on the part of the students.

Students respond to incentives, and despite what we think, grades are the primary motivators of students. Since good grades depend on mastering test material, what we test students on primarily determines what will be learned.[15] In the earlier part of this century more than 90 percent of the questions tried to have students at Harvard know facts, describe the opinion of others, or relate fixed sequences of events. Happily, more questions emphasized analysis as opposed to memory or description as the century wore on.[16] In constructing my tests, I try to ask both objective type questions with essay questions that make students think.

A final goal of my teaching involves this: to have students see through the details of my various courses in order to discover the principles that can be applied to new learning situations.[17] An example may clarify matters. An educated person should be able to listen with attention, think with clarity and write with accuracy. I want my students to learn how to listen attentively in class. When I ask a student a question, I often ask another student to paraphrase the other student's response to the question. Students typically do not listen to their peers but often listen only to what the instructor says. In emphasizing the importance of listening to their peers, I am encouraging students to listen attentively in their own classes.

In this essay I have only scratched the surface in trying to apply the insights of critical thinking to the academic study of religion. Much more work needs to be done in this particular area. To accomplish that task, researchers in the academic study of religion need to be both creative *and* critical.

Notes

[1] Sharon Bailin, "Creativity or Quality: A Deceptive Choice," *Inquiry: Critical Thinking Across the Disciplines* 7 (1991), 5.

[2] Bailin, *Achieving Extraordinary Ends: An Essay on Creativity* (Dordrecht, The Netherlands: Kluwer Academic Publishers, 1988), 85.

[3] Bailin, "Creativity or Quality," 5.

[4] Paul A. Hare, *Creativity in Small Groups* (Beverly Hills, CA: Sage Publications, 1982), 157.

[5] Richard Penaskovic, "Toward a Definition of Creativity," in Diana Macintyre De Luca, ed., *Essays on Creativity and Science* (Honolulu: Hawaii Council of Teachers of English, 1986), 103.

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[6] This entire discussion is taken from my article in footnote number 5 above.

[7] Mary Henle, "The Birth and Death of Ideas," eds. Howard E. Gruber, et al., *Contemporary Approaches to Creative Thinking* (New York: Atherton, 1962), 48.

[8] Howard Gardner, *Frames of Mind: The Theory of Multiple Intelligences* (New York: Basic Books, Inc., 1983).

[9] "Symposium on the Theory of Multiple Intelligences," David N. Perkins, et al., eds, *Thinking: The Second International Conference* (Hillsdale, NJ: Lawrence Erlbaum Associates, 1987), 84.

[10] "Symposium," p. 85.

[11] Roger H. Garrison, "The Tools of the Teaching Trade," *Improving College and University Teaching* 24 (1976), 69.

[12] Phillip C. Candy, "How People Learn to Learn," in Robert M. Smith, et al., eds., *Learning to Learn Across the Life Span* (San Francisco: Jossey-Bass, 1990), 50.

[13] Stephen D. Brookfield, *Developing Critical Thinkers* (San Francisco: Jossey-Bass, 1987), 12.

[14] David C. Finster, "Freshman Can Be Taught to Think Creatively, Not Just Amass Information," *The Chronicle of Higher Education* 35 (July 13, 1988), A 40.

[15] Gary Galles, "Reforms That Focus on Content Alone Won't Solve the Problems of Education," *The Chronicle of Higher Education* 35 (April 13, 1988), B1.

[16] Derek Bok, *Higher Learning* (Cambridge: Harvard University Press, 1986), 49.

[17] Mark Weinstein, "Critical Thinking and Education: The Search For An Archimedian Point," *Inquiry: Critical Thinking Across the Disciplines* 7 No. 4 (May, 1991), 37.

Richard Penaskovic, Professor and Head, Department of Religion at Auburn University, edited Religion and Authority *(Peabody, Mass: Hendrickson, 1987). His articles have appeared in* Horizons, Theological Studies, The Heythrop Journal, Louvain Studies, *and* Augustinian Studies.

BEHAVIOR MODIFICATIONS AND CRITICAL THINKING STRATEGIES FOR UNDER-PREPARED STUDENTS

Donald R. Small & Helen V. Brantley

BMTT, *The Behavior Modification Thinking and Testing* model, is designed to provide the cadre of structured instructional activities for strengthening thinking skills and test-taking proficiencies among non-traditional learners. Each phase of the instructional activities of the model is applicable for non-traditional learners of all ages. Here are a few more details on the BMTT.

Rationale

The Behavior Modification Thinking and Testing model is founded upon the following major assumptions:

1. Difference in subcultural patterns has significant effect upon learning patterns, academic achievement, and proficiency in taking tests.
2. The learning patterns of the culturally different (non-traditional learners) represent a major barrier to test-taking proficiency and general academic success.
3. The culturally different (non-traditional learners) lack parity with their advantaged counterparts in competitive attributes necessary to get jobs and achieve career success.
4. Structured behavior modification techniques can and must be applied to achieve significant levels of parity in academic achievement, test-taking proficiency, and career competitiveness among the culturally advantaged and disadvantaged.

The Behavior Modification Thinking and Test-taking model features a variety of generic learning strategies founded upon validated contemporary principles of behavior modification and test-taking proficiency. The precursors (i.e., preparatory activities) of the instructional model are critical self-assessment and affirmative resolution for effective modification of personal and academic practices. The pervasiveness of self-defeating personal and intellectual habits that have been shown to be common among non-traditional learners, makes self-assessment and resolution a necessary "first step" in the development of test-taking skills.

The power of the BMTT model lies primarily in its heavy dependence upon strategies that stimulate the development of positive self-imagery, effective study habits, and efficient planning behaviors. The primary assumption of these strategies is that persons who have experienced difficulty taking tests must first modify their self-image, and subsequently modify many of their academic habits and routine personal practices that prevent them from engaging systematically and religiously in the activities they need to score favorably on tests. The self-assessment and resolution formulation portion of the BMTT features scientifically tested procedures for the mental "reprogramming" necessary to bring about measurably positive changes in social and academic behaviors.

Secondly, the effects of the model relies heavily upon strategies designed to sharpen high-level thinking skills. This mode of information processing can never be achieved until self-image, academic habits, and routine personal practices are sufficiently modified accordingly. The non-traditional learner typically experiences substantial difficulty correctly answering standardized test items that routinely require analysis and evaluation of subject matter to which he or she may have limited exposure. The limited exposure to culturally driven subject matter, as opposed to the potential for processing information at high levels, is a primary obstacle for the non-traditional learner on tests.

Communication mode (subcultural variant of a given language) represents a major barrier to favorable test performance among non-traditional learners. Early learning of subcultural communication patterns that have significant levels of dissimilarity with those of professional test-makers create a measurable element of difficulty for these individuals. This dissimilarity in verbal communication patterns is further exacerbated by the presence of substantial levels of culturally driven disparity in the perceived meanings of words and concepts.

During their formative years, non-traditional learners, compared with their advantaged counterparts, are exposed to significantly fewer experiences that develop "standard" communication. Despite the fact that considerable proportion of non-traditional learners have been shown to communicate in more conceptually complex modes than their advantaged counterparts, these non-traditional learners typically experience difficulty in performing academically in parity with culturally advantaged students. *Non-traditional learners tend to learn best when the source of information appeals to the visual and tactile/kinesthetic senses, such as with computerized learning activities, or any learning experience that involves concrete objects that may be manipulated.* Unfortunately, a substantial proportion of the instructional activities of the contemporary classroom appeal to the auditory sense.

Quite often, the teachers of non-traditional learners severely diminish the academic achievement of these students by applying inappropriately structured teaching modes, and by holding perceptions Wilbur Brookover (1978) described as "low expectation for student academic achievement." Low expectation for student academic achievement implies that teachers *expect* these students to perform poorly in their academic work. As implied earlier, a primary source of the non-traditional learner's academic problems is *the dearth of economic resources to procure an adequate volume of goods, services, living amenities, and social experiences as are required to compete favorably in most phases of society.* In summary, non-traditional learners differ significantly from other learners, primarily in the specific content and nature of cultural learning experiences, the appropriateness of formal teaching strategies to which they are exposed, and low teacher expectation for student achievement.

Among the specific factors that account for much of the variation in achievement success among non-traditional learners are, *the extent of exposure to other world cultures and subcultures* (as achieved through travel), and *the presence of magazines, newspapers, books, and other reference literature in the home that are read routinely by parents and siblings.* It is not, then, the non-traditional learner's lack of potential to learn that explains this variation. It is, rather, the non-traditional learner's lack of exposure to certain key cultural learning experiences that are common among culturally advantaged students, and are reflected in our formal educational systems.

Personal success experts overwhelmingly concur that most successful business entrepreneurs owe the major portion of their good fortune to genuine optimism, aggressiveness, and determination. Many individuals are able to motivate themselves to pursue ambitious projects, but somewhere along the way, they lose momentum and the project fails. Experts say that this is because these individuals may have some unconscious flaws in their personalities that make eventual failure in business predictably inevitable. Consciously, these individuals appear to have what it takes to get the job done; unconsciously, however, these individuals are programmed to fail.

To help you better understand the concept of programmed success and failure, it may be important to provide a conceptual framework. The late Sigmund Freud, noted Austrian psychiatrist, hypothesized that the human personality is intact by ages 5 to 6. According to Freud, the vast majority of the coding of the unconscious mind that forms the primary permanent structure of personality is in place. Freud notes that once early personality-forming impressions are coded into the unconscious, it becomes extremely difficult to erase them. In fact, Freud felt that no unconscious coding is ever really erased but merely displaced by counter-active codes.

Displacing this coding is somewhat like renovating an old house. After renovation, a house still retains some of the tell-tale evidence of years of weathering. A good wind storm could easily expose the old support beams and reveal it for what it once was. An even better example may be that of drug addiction. Addiction specialists contend that no addict is ever "cured" of his or her addictive tendencies.

The dominant attitudes and behaviors of humans can be traced back to childhood. Attitudes, to a great degree, may be reflected in the way one behaves. Freud noted that although human behaviors and reactions to various stimuli change as one matures, the motives or reasons for the behavior (whatever they may be) remain essentially the same throughout life. The key to effective behavior modification (changing attitudes and behaviors to meet one's desires) is to change undesired behavior by introducing to the unconscious mind a desired attitude intended to displace the the old, undesired attitude. This process amounts to a reconditioning of the inner self (the unconscious mind) by consciously structuring the environment to de-emphasize the undesired attitude and to emphasize the new, desired attitude. *While the nature of one's environment explains the nature of one's prevailing attitude essentially explains one's prevailing behavior.* Thus, controlling the environment is a primary enabling objective in most behavior modification therapy.

Just as the alcoholic must deliberately avoid going to places where liquor is consumed, one with scholarly ambitions must structure his or her daily activities in such a way that academic pursuits are primary and other activities are secondary. Successful drug rehabilitation rarely, if ever, occurs when an addict remains in the same physical and social environment. The same environment contains all of the reminders of the addictive life and eventually lures the addict back to the imagined comfort of drug use. Real scholarship is seldom achieved when recreational distracters are permitted to dominate daily occupations.

Conducting a Comprehensive Self-Assessment

Our understanding of the elements that explain human success and failure in attaining goals in life provides a basis for structuring a methodology for our changing certain attributes to meet specific needs and wants. As a college student, you should know that much of your immediate success in college depends heavily upon your ability to structure your personal environment to be consistent with your scholarly and professional ambitions. You can probably think of some things about yourself (behaviors) that you do not particularly like or that are counter-productive to doing well in college. If these habits were with you in high school (or earlier), they may be difficult to change.

Eliminating (or should we say displacing) these behaviors will require quite a bit of deliberate effort on your part. *You must first write them down.* Next, you must make out a contract with yourself (a resolution) to do something about changing the behaviors. Finally, you must devise a strategy that assures that you will keep your contract. If you are like most students, comprehensively assessing yourself may be a difficult and painful task, but you must do it. You can never modify undesired behavior until you are honest with yourself.

Sit for a moment to think about yourself. Think about some of the things that you do which you feel are hindering your progress as a scholar and as a person. Write them down. List all of the *unfavorable habits and/or tendencies and skills you possess that you would like to change.* Do the same with *habits and/or tendencies and skills you like about yourself and wish to enhance.* There is some good in everyone. It is very important that you list your favorable attributes in such a manner that you don't send the wrong messages to your unconscious mind. *You are building upon your favorable attributes, not starting from "scratch."* It may be a good idea to assess yourself over a period of a few days.

EXAMPLES OF SELF-ASSESSMENT LISTS

-Unfavorable Habits, and/or tendencies, and skills I possess....

1. Constantly waiting until the last minute to study and complete tasks.
2. Sometimes not studying or not preparing for class.
3. Sometimes late to class or other important activities.
4. Sometimes using curse words in public and being too loud and rude to others

-Favorable Habits, and/or tendencies, and skills I possess....

1. When I study hard, I can comprehend any concept and do well.
2. I have creative ideas and skills in my major (Business Administration)
3. I am good in math and science.
4. I get along well with others, and I am well liked by others.

After you have completed your self assessment of habits, you will be ready to write a resolution for changing unfavorable habits and enhancing the favorable ones. Use a piece of scratch paper to compose each of the statements for your formal resolution you will transfer tofinal form on the next page. Write each resolution statement to coincide with the habits you listed on the Self Assessment.

SAMPLE RESOLUTION FOR SUCCESS STATEMENTS

I resolve to do the following:

- Study using a systematic study technique and prepare for class each day.
- Start all class assignments (e.g. term papers) well enough in advance of the due date that I will have enough time to do my best work.
- Do all that is necessary to arrive at each of my classes on time each day.

Once you have completed your RESOLUTION FOR SUCCESS statement, *think of someone close to you who is sincerely concerned about your success in college and your success in life in general.* This person could be your advisor at the college, one of your professors, your minister, or another student who has also formulated a resolution for success. *Discuss your resolution and goals in life with this person and ask him or her to sign your resolution as a concerned witness to your determination to be the best that you can be.* This important step effectively sends the positive message to your unconscious mind that says, "THIS IS AN OFFICIAL ACTION. THIS IS IMPORTANT AND IMPERATIVE." You see, *your unconscious mind tends to ignore any message that does not carry an official impression or stamp of approval.* Consider the fact that practically no unmarried couple is able to share the same bedroom at either of their parents' homes even one day before their wedding day. The day after sharing vows, this same couple is able to do so with their parents' blessings. The marriage certificate carries the sanction of law and sends the corresponding official message to the unconscious minds of all witnesses.

Reinforcing Your Resolution for Success

The primary reason resolutions are not fulfilled is that they are simply forgotten. Fulfilling a resolution is much like caring for a kitten. If you do not feed the kitten, it will surely heed the drive of nature and leave. Anything in life that is not cared for on a consistent basis will suffer from neglect. Resolutions, like love, must be reaffirmed on a consistent basis. Reaffirmation is the process by which the elements that make up your plan for change are kept on a consistently conscious level. When kept on a consistently conscious level for fairly extended periods of time, the elements of your resolution will become manifest or permanent impressions (programmed codes) on your unconscious mind. This unconscious programming will be reflected in your subsequent behavior.

The rewards resulting from your new, more progressive behavior (e.g., better grades, feelings of confidence, and optimism, etc.) will serve as additional reinforcement of the permanent nature of the impressions upon your unconscious mind. Repeat the following affirmation statements each morning, at noon, and at night before you fall asleep. *Don't take these affirmation statements lightly or discharge them as "corny" or meaningless.* See them as a bridge to your success in life. Nobody needs to know what you are doing. After you find that they work for you, you will probably want to share them (and this entire process) with your friends and family.

RESOLUTION AFFIRMATION STATEMENTS
I can do anything I put my mind to doing!!
I feel great about myself!!
I like myself because I am myself!!
I will do my very best with every task I begin!!
I am determined to be the person I want to be, not the person others would have me to be!!
I will never quit before I complete any task to which I commit myself!!
I will not be discouraged by the comments or actions of anyone who reacts to my permanent commitment to improve myself!!
I will not do anything that will destroy my chances for success in life.
I will soon be the scholar and confident person I have always wanted to be!!

Draw a simple logo or graphic figure to represent your resolution. Draw this figure on the inside cover of you textbooks, notebooks, and in other places to remind you continuously of your ambitious resolution for success. Remember, this is your life to live for *you*!! Commit yourself to becoming a little better every day.

Don't be discouraged by mindless comments from those who want you to remain as you are. "Misery loves company." Let them endure their misery without you!! Take advantage of this opportunity to improve yourself academically and personally. Some day you will look back on your great accomplishments and say, "I'm so glad I did."

Thinking requires the employment of appropriate behavior towards an objective, goal or decision. Analyzing and assessing a situation or idea critically involve our active participation during the process and toward the results. In other words, we are part of the action.

Anyone can become a critical thinker through effort and practice. Start immediately by carefully questioning the practices and principles of your friends, instructors, news articles, television and radio reports and textbooks you are currently using in classes. Examining the thinking of others using a questioning attitude allows you to function more actively in your total environment (college campus, classes, the community). Set high standards and work on becoming self- directed in thought and action as opposed to waiting for others to tell you what to do. Learn to evaluate your own work and start answering the question, *"How well can I do what I want to do?"*

Generally those who consider themselves critical thinkers operate on the assumption that they are always questioning, analyzing and evaluating people, ideas and situations in light of their own thinking and existence. Of course, when you stop to think about your purpose of coming to college, hopefully, you will realize that you should also be about the business of encountering challenging situations which require you to expand and extend your critical thinking abilities. "In *College is Only the Beginning*, Thorne Compton discusses the heart of higher education in American as learning to think as opposed to learning facts; learning to integrate ideas as opposed to answering right or wrong; and, above all, learning to enjoy life as opposed to learning to do a job. Take it seriously. For you, the nature of your higher education can make the difference between living the life of a free person and the life of the modern slave—without chains, but also without choice."

Perception Influences our Critical Thinking

Our thinking abilities are influenced by current stimulations and past experiences. Stimulations and experiences influence our perception. This is illustrated quite vividly in the first sentence of the famous parable of the *"Allegory of the Cave,"* from Plato's Republic. Plato contrasted the teachings of Socrates (a world of light and true image) with the blind, shadowy perceptions of the material world of everyday experience (the world of the cave).

> Imagine the condition of men living in a sort of cavernous chamber underground, with an entrance open to the light and a long passage all down the cave. Here they have been from childhood, chained by the leg and also by the neck, so that they cannot move and see only what is in front of them because the chains will not let them turn their heads. At some distance higher up is the light of a fire burning behind them; and between them the fire and the prisoners (therefore behind them) is a track with a parapet built along it,

> like the screen of a puppet show, which hides the performers while they show their puppets over the top.

According to James Walker, "The first sentence could possibly represent the world of sense-perception or experience, ruled by the human senses and their "sensitive-imagination" foundation. This perception or experience, ruled by the human senses enables man to lie together "descriptively" all that can be experienced or perceived immediately and directly "in front of him". The entrance open to the light " represents the gateways to reason, which houses the essence of truth; and, the "long passage down the cave" represents the perception and experiential difficulty of a man in discovering and moving beyond the prison of his perception and its sense and imagination foundation in the darkness of the cave." (pp. 36-37).

Sometimes our past experiences distort our our perception of truth or reality as demonstrated by the passage. In the following passage, metaphors expand rather than limit the use of language as the connection in made between the past and current experiences. At the same time, these metaphors appeal to the perception. According to C. Hugh Holman, a metaphor is "an implied analogy which imaginatively identifies one object with another and ascribes to the first object more qualities of the second or invests the first with emotional or imaginative qualities associated with the second," (p.264). For example, your professors, great leaders, administrators and even ministers have utilized metaphors to capture your attention, to anchor information, to make concepts clear and to leave lasting impressions of issues or point of views. Sanders & Sanders (1984) provide a vivid illustration of the utilization of metaphors in the discussion of one of Dr. King's speeches:

> Few of the eulogies which were delivered immediately after the assassination of Dr. martin Luther King, Jr. failed to mention his "I Have Been to the Mountain" speech. The speech was a metaphoric summary of a committed man's lifelong struggle; in the speech, King spoke eloquently and emotionally of not fearing death because he had experienced the ecstasy of his own life's worth - a moment of total self-fulfillment captured in the metaphoric phrase, "I have been to the mountain." With simple clarity and over powering force, the metaphor expresses King's faith in the purposefulness of the climb. In fact, the secret of the metaphor lies in the expanding impact of its crystalline image; the metaphoric image extends our perceptions, our understandings, and our explanations - it creates a picture of the message we seek to communicate (p.127-128).

Let's find out!! Answer the five questions below, by *circling the number* of the response that best describes your behavior. After you have answered all questions, compute your score by adding the circled values, and record the score in the designated space at the end.

1. Do you allow your personal perspective to determine your behavior?

Always	Most of the time	Sometimes	Rarely	Never
5	4	3	2	1

2. Do you consider another point of view?

Always	Most of the time	Sometimes	Rarely	Never
5	4	3	2	1

3. Can you assess your own strengths and weaknesses?

Yes, Definitely	Yes, Probably	Not Sure	No, Probably not	No, Definitely Not
5	4	3	2	1

4. Do you search for evidence to evaluate your claim?

Always	Most of the time	Sometimes	Rarely	Never
5	4	3	2	1

5. Do you search for evidence to revise the strengths of possibilities?

Always	Most of the time	Sometimes	Rarely	Never
5	4	3	2	1

TOTAL SCORE ______ (Add points 1 through 5)

Now, find your score range and circle the "Assessment" for that range.

CRITICAL THINKER ASSESSMENT SCALE

Score	Assessment
21 - 25	Very Critical Thinker
16 - 20	Moderately Critical Thinker
11 - 15	Indecisive ("Sometimey" Critical Thinker)
6 - 10	Substantially Uncritical Thinker
1 - 5	Very Uncritical Thinker

What kind of thinker are you?

Profile of a Critical Thinker: Martin Luther King, Jr. *from The Developmental, Education and Guidance of Talented Learners*

King's temperament was described by many as a cross between his quick-tempered father, and his more placid mother. He was always a good student and graduate from high school at 15. His early career goal was to be a physician in order to better serve the black community. In college, he changed his major to sociology in order to enter law school. Then toward the end of college, he accepted the call to the ministry.

Early in his ministerial studies, he was attracted to the writing of Walter Rauschenbusch, especially *Christianity and the Social Class* from which King concluded after reading, "that any religion which professes to be concerned about the souls of men and is not concerned about the social and economic conditions that scar the soul, is a spiritually moribund religion only waiting to be buried" (Miller, 1968, p. 17). Ghandi's writing and success in India attracted King, and he also studied Niebuhr's critique of pacifism and non-violence.

King's definition of leadership, as he applied it to himself, included a broad range of elements: commitment, a philosophy for guiding behavior, taking risks, courage in the face of fear, being able to command attention and teach others your perspective, leading by example, communicating effectively in words and deeds, and gaining the involvement of other leaders-which may prove more difficult than rallying followers. He knew also that leadership requires the right circumstances, favorable publicity, and a knowledge of how to use the media. He recognized how important it was to understand law and government in order to function well within the system. And most importantly, he knew the value of knowing one's own motives and fears and the motives of others. King tried to lead along these lines. He was a reluctant leader at first, but as people turned to him he had to become more assertive. He admitted to living in fear for himself and his family and would have preferred not to have been a social reformer(p.110). However, he realized that truth was the ultimate goal to freedom and spoke of rising beyond the tangible forces confronting a people seeking truth and justice.

Martin was able to conceptualize the world in which he lived from a global perspective. As a self-critic, he actively engaged in explanations of the logical analysis of systems (economic, educational, political, religious, social). He utilized high level analysis to solve problems, make decisions. Through consistent study and observation, Martin intermashed these systems into everyday language that explained life's situations. From this example we can see that critical thinking involves the following:

1. *Active participation* - involving yourself in what is going on.
2. *Self-direction* - taking the initiative in making things happen.
3. *Perservation* - carrying on with an idea, thought, or behavior inspite of barriers encountered.
4. *Questioning attitude* - continually asking why, how, why not and what if?
5. *Monitoring or assessing* - responsible for revamping, modifying or adapting one's behavior to consider another point of view.
6. *Organization* - not being impulsive in the discussing of ideas or behavior.

We are what we repeatedly do. Excellence then is not an act, but a habit.
Aristotle

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CRITICAL THINKING: THREE MODELS TO HELP TEACHERS IMPROVE THEIR PRACTICE

Ann Marie Di Lorenzo
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There are many models available for improving the practice of teachers. These include programs of professional education for both prospective and teachers in service. At Montclair State, our commitment to the professional development of teachers has resulted in efforts of both kinds. Teacher education at Montclair has a long history and is central the the college's sense of mission. In recent years the teacher education program has focused on critical thinking as a unifying theme. This has resulted in activities that enable college faculty to work with their colleagues in the schools in a variety of settings and within a number of differing programs. In this brief review, we outline three approaches towards helping teachers improve their practice within the critical thinking theme in teacher education at Montclair State. First we will describe a series of in-service courses, that although specific to Biology, are typical of many such efforts developed by Montclair State faculty. Next, we describe two programs for teachers offered in association with a local school district. The first is a long standing program, the second, a recent development that reflects our continued involvement with the educational community. Finally, we describe our Master of Education, Concentration in Critical Thinking degree program.

All of these developments are characterized by the commitment Montclair faculty has to the schools and to the social needs that our schools are mandated to address. We offer them as examples to others in the educational community. Both colleges and schools have enormous possibilities for their mutual renewal. We hope that these brief indicators of what we are doing will prompt others to think broadly about what can be done.

1. In 1989 funding was obtained from local pharmaceutical companies to support a hands-on laboratory program in the techniques and problem solving skills currently used in Molecular Biology and Toxicology, in order to enhance and update the skills and knowledge of secondary school science teachers. This was accomplished through a series of workshops to bring the leading edge of theory and practice in Biotechnology into the high school classroom.

The objective of the workshop series was to enhance participating high school teachers with skills in Biotechnology so they could then challenge students to think productively about new concepts in Biology and approach decision-making problems with increased knowledge and awareness. A series of lectures in the latest developments in Molecular Biology and Toxicology prepared the teachers to disseminate this knowledge to their students. The workshop coordinators worked together with experts in the field of the pedagogy of critical thinking to model collaborative problem solving that would enable teachers to design their science curricula to include problem solving and critical thinking activities related to Biotechnology. The science teachers in this project were given both technical and pedagogical tools to provide students with the opportunity to improve the quality of their scientific reasoning abilities and allow them to exercise a full range of life choices, as well as to participate knowledgeably in public policy discussions and decisions.

This "hands-on"/"minds-on" cooperative experience was well received by secondary school teachers, college science faculty and college faculty with expertise in the area of critical thinking. As a result of this pilot project, funding from the State of New Jersey has been obtained to expand this project, in a modified form, to include grammar school teachers.

2. For the last 12 years, Montclair State College faculty have worked with Newark school teachers toward critical thinking as an educational goal as part of Project THISTLE: Thinking Skills in Teaching and Learning. In Project THISTLE, the relationship between critical thinking and the processes of curriculum development, of student learning, of reading comprehension, and of oral and written expression are explored through an 18 credit graduate program. Among these courses is *Critical Thinking and Learning*. To date, more than 500 Newark teachers have enrolled in the six course sequence in Project THISTLE, which is offered after school in Newark. Many teachers have continued on at the Montclair State campus, receiving their master's degrees. Several Newark principals, assistant principals, curriculum coordinators, department chairpersons, and other administrative personnel are former "THISTLERs;" their support is helpful to teachers learning to teach for critical thinking in their classrooms.

A new program this year is the Newark School District/Newark Teachers Union/Montclair State College partnership sponsoring the Harold A. Wilson Middle School for Professional Development. In this program, *visiting teachers* are released from their teaching responsibilities at other Newark schools to visit and study full time at Harold A. Wilson for five weeks, observing classrooms, attending lectures and teaching demonstrations, and participating in seminars and clinics. Teaching responsibilities are assumed by *exchange teachers*, who are faculty members of Harold A. Wilson and who play key roles at the schools of visiting teachers. *Resident teachers* are involved in the professional development of the visiting teachers; in addition to their responsibility for the 200 middle school students at Harold A. Wilson. Montclair State faculty are actively involved in the professional development program at Harold A. Wilson, working with teachers to incorporate critical thinking as a major theme throughout the school and professional development programs, and facilitating inquiry into the processes of teaching and learning. We hope that these two programs may be of value to other college/school collaborative professional development programs.

3. Montclair has recently designed a Master of Education Concentration in Critical Thinking. It sees as its goals:

a. To develop an understanding of the philosophical, historical, social and political origins of the concept of critical thinking and the implication for current school practice.

b. To develop an understanding of the basic concepts and ideals that underlie critical thinking as a school goal.

c. To develop an understanding of research and evaluation especially as they relate to the improvement of teaching.

d. To strengthen teachers' existing curricular planning and pedagogical strategies so that critical thinking objectives can be achieved.

e. To develop the ability to engage in critical analysis of educational issues and the professional knowledge base of teachers.

This 38 to 48 semester hour program includes, in addition to a core of courses common to the entire Master of Education program, 9 to 12 semester hours of specialized courses in critical thinking. The common core includes such courses as Principles of Curriculum Development, Social Forces in Education, Methods of Research, and Strategies for Curriculum Change. These courses exemplify critical thinking principles and strategies, and typically require students to think critically about their own practice, through such academic tasks as curriculum projects, research studies, and change strategies they themselves design. Specialized courses such as Critical Thinking and Learning, Critical Thinking and Literacy, Critical Thinking and Inquiry, Critical Thinking and Political Forces, Critical Thinking and Moral Development, and Culminating Activity Project in Critical Thinking provide the essential focus on critical thinking that characterizes the concentration. The course that will be the focus here — Critical Thinking and Learning, offers an overview of the field.

What characterizes Critical Thinking and Learning is the requirement that teachers develop their own conception of critical thinking based on their reading of seminal works in the field. By working from the original contributions of such major thinkers as Jerome Bruner, John Dewey, Richard Paul and Matthew Lipman, teachers grapple with what critical thinking can mean to them within the context of their own teaching and learning. This is reflected in the course structure which is highly interactive, focusing on discussion of the readings and collaborative learning activities.

Teachers are required to record their thoughts and observations in an ongoing log that forms the basis for their individual efforts. This results in two papers, the first a narrative submitted at mid-semester that traces their developing concept of critical thinking and a final analytic essay in which they argue for a conception of critical thinking warranted by their reading, their reflection on their teaching and learning experiences, and their informed understanding of the problems in the field. Among the goals of the course is that teachers develop "instructional plans." These are complex descriptions of lessons that are unified around an education goal, that reflect particular content objectives, and that utilize particular critical thinking skills and dispositions that turn the content objectives towards the achievement of the educational goals.

What is most important in the course is that teachers are required to reflect on their own experiences, to share their thoughts with their colleagues, and to use essential readings in the field to develop a sense of the problems and possibilities that critical thinking as an educational ideal offers to the thoughtful educator.

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